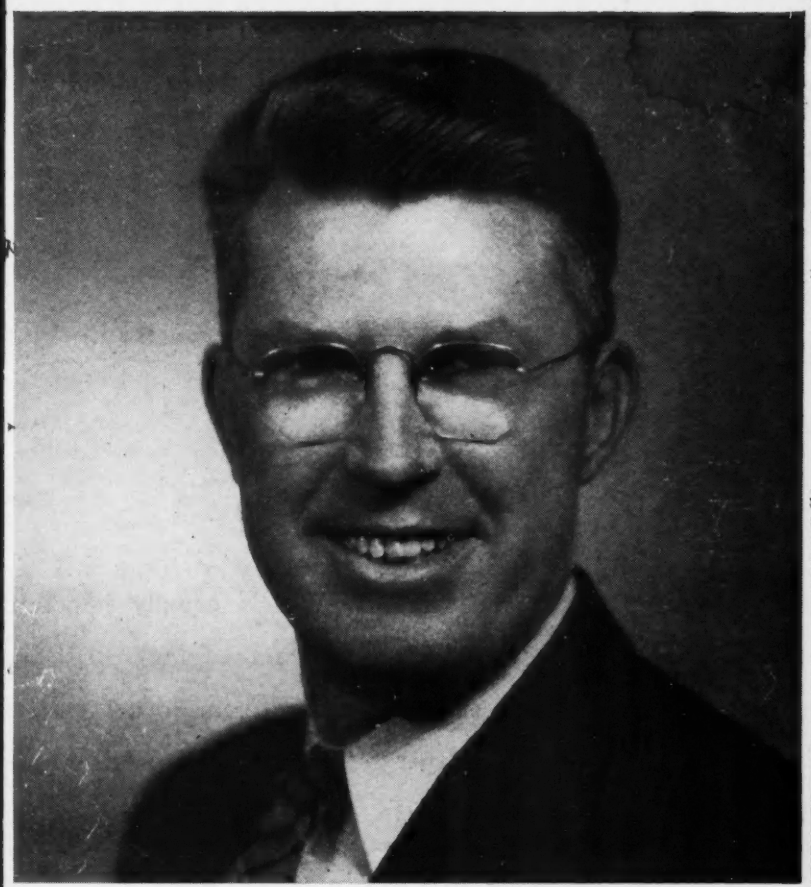
The Citrus Industry



ROBERT C. EVANS

Recently appointed General Manager Florida Citrus Commission, a position he had held before, resigning in December, 1947

Vol. 30, No. 8 August, 1949

Florida Ranks First In Citrus Prospects . . .

The United States Department of Agriculture report on citrus prospects as of July 12 shows that Florida is by far in better condition than other producing areas of the United States.

Florida's crops flourished in June when May drouth was relieved by almost daily showers. Field crops and citrus groves made a strong comeback and by the first of July, growers are reporting better than average production prospects for practically all general field crops. The first week in July just about wrote the finish of the 1948-49 season for citrus fruits (except limes) and vegetables. Tobacco harvest is well along, while a poor crop of oats was cut last month.

Grapefruit prospects brightened during June when condition increased 3 points to 63 percent of a full crop, comparable with 62 last year. Orange condition dropped 2 points from 70 on June 1 to 68 July 1 and 70 percent July 1, 1948. Tangerines at 53 percent compares with 62 June 1 and 59 percent a year ago.

Growing conditions were good during June in all important citrus areas of the country, but prospects for 1949-50 citrus crops vary sharply, with the best outlook in Florida and the poorest in Texas. **Florida** citrus groves are in good condition and new-crop prospects are good. Frequent rains in June eliminated the threat of drought damage.

In **Texas**, a very short crop continues in prospect for 1949-50. The regular bloom was light, following the January freeze, and a late bloom has failed to materialize. The light set of fruit is sizing well and may be ready for market earlier than usual. A few groves show good recovery from the freeze, but in most groves the growth of new wood has been slow and new leaves are small. Condition of oranges is reported at 15 percent, grapefruit 12 percent compared with 57 and 51 percent last year.

California citrus trees bloomed much later than usual this season and fruit is therefore small in size for this time of year. The lemon bloom has been particularly late and light; however lemons bloom over a long period and a good set of fruit can still materialize. Lemons sustained the heaviest damage from the January freeze. Condition of California oranges is reported at 79 percent of a full crop, (Navels 77, Valencias 80) compared with 10-year average of 77 and 82 in July of 1948.

CARE URGED IN USE OF PARATHION

Special precaution in handling parathion, one of the newest and most effective insecticides, is advised by the State Board of Health.

The warning was especially directed to workers in insecticide and fertilizer plants where the substance is mixed.

Caution shou'd also be used when insecticides containing parathion are used as sprays on farms and in citrus groves. Insecticides containing the substance carry labels, warning that they should not be used as household sprays.

A set of directions for handling this material has just been published by U. S. Public Health Service. According to that agency, special precautions are needed because parathion can be absorbed through the skin. Work clothes should be laundered daily and parathion mixers should wear rubber boots and gloves. A shower bath at the end of the day's work is advised. If parathion gets on the skin, it should be washed off immediately.

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
Representative of every interest
Representing no special interest

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Looking Ahead With Mutual

A VERNON SAURMAN,
PRSIDENT

When one looks back upon the citrus industry with its years of turmoil, its area and individual animosities, and compares the situation then with the fairness and generous spirit of the men who built Mutual and are now planning its program, he is forced to believe that we still live in the age of miracles. 6,500 growers, representing about 80% of Florida's citrus production, have united under the Cooperative Act of the State of Florida in compliance with the federal Capper-Volstead Act, to run their own business on a sound basis.

It has required nearly 18 months of incessant work and a large investment in money, both of which have been contributed by growers, shippers, processors, bankers and business men whose generosity and public spirit have marked a new high in the State's economic life.

Most of the readers of "The Citrus Industry" know the form, powers and purposes of Mutual as set forth in the Charter, By-Laws and the growers' and handlers' contracts. So, I shall summarize these in just a few words, going on, then, to my subject: "Mutual Looks Ahead."

The Capper-Volstead Act permits organization of growers to collectively control the marketing of their products, thus operating "for their mutual benefit." Such organizations are exempt from the general provisions of the anti-trust laws. They may arrange for orderly movement of fruit to market to avoid disastrous gluts, and in behalf of their members, negotiate the prices at which fruit shall be sold whether to fresh fruit buyers in the auction and fob markets or to the operators of canning and concentrate plants.

Mutual's charter gives it broad powers and lists a large number of important purposes and objectives. This young cooperative giant will not exercise all of them from the beginning; some, because the work is now being done by other agencies, for example, the advertising program of the Florida Citrus Commission; others, because Mutual wants to devote its present energies to the most pressing immediate problems. In time it will build a complete program out of the experience of the industry working harmoniously together. As one reexamines its powers, he is convinced that the growers thus working together can handle any problem or develop any program which, in their united judgment, will contribute to a more stable and successful citrus industry.

Under the By-Laws, the growers have complete control of Mutual operations. They elect all the grower directors. Those directors select the management and are responsible for it. They choose the handlers' Advisory Committee. This committee is as the title implies—purely advisory. They may be selected, discharged and their advice followed or not followed as the grower board decides. At this point, I want to state that the members of the Advisory Committee, as well as many, many other handlers, have been most cooperative, generous of their time and extremely helpful in building a sound marketing program for the 1949-50 season.

Every grower member, regardless of the acreage he owns, has the same voice in the management of Mutual:—one member, one vote.

Before looking to the future and discussing plans and policies, let's pause a moment to examine one act of Mutual which so effectively demonstrates what can be done when men of goodwill with a common interest work together. I refer to the voluntary allotment program which was developed by Mutual and administered by the Florida Citrus Commission. In the judgment of citrus operators, this one act of leadership, even before Mutual had 75% of the tonnage signed up to give it the legal power to operate, increased the returns for Florida oranges during the past season by many millions of dollars. This alone justifies the faith of its organizers and compensates those who have sacrificed so much to bring it into being and to plan its future.

The Mutual Board of Directors and the Advisory Committee have devoted themselves to the major

problems: the planning of the orderly movement of the fruit into the markets and the building of a program which will assure to the growers profitable returns for their fruit through the correction of marketing chaos and the elimination of cut-throat competition. The plans for the achievement of these objectives were stated by the Mutual Board, July 22, the substance of which is:

1. The regulation of the volume of fresh fruit shipments, with weekly allotments to shippers on a basis adjusted as crop conditions may warrant.

2. The allotment of fresh fruit shipments to metropolitan auction areas, whenever such allotments become necessary, with allotments to shippers recognizing their historic position in such markets.

In its regulation of the volume of fresh fruit shipments, Mutual will announce weekly allotments for all interstate shippers, and will seek the cooperation of all shippers in observing such allotments—to make this regulation as effective as possible in the absence of a Federal marketing agreement regulation.

3. The establishment of minimum prices on f.o.b. sales of fresh fruit whenever such minimum prices are necessary to stabilize marketing conditions and to achieve a more orderly distribution.

4. The establishment of minimum on-tree prices for the fruit of its members utilized by canning and concentrating plants.

The achievement of the objectives of the foregoing program will require the cooperation of the entire industry, both growers and handlers collectively. There is enough ability, experience, and financial strength to make a success of these and other plans. The fault in the past has been that the individual ability, experience and financial strength has been used in destructive competition against every other individual, and the growers have always suffered most in this conflict. Mutual is confident of its power when, finally, they are using their talents and resources in unity and in furtherance of the prosperity of all.

You will be interested in learning something about our thinking as to the administrative and management personnel who will be required to put these policies into practical operation.

The pattern suggested below has not yet been set up and the administrative structure must, of course, be finally determined as we come closer to the conditions and operating problems of next season.

In brief, however, Mutual's management will be controlled by the growers through the Board of Directors with the help and advice of the handlers' Advisory Committee. It is anticipated that the organization will require a general manager who will be assisted by: (1) fresh fruit maanger, (2) processed fruit manager, (3) economist and analyst, (4) public relations expert, and (5) financial auditor or comptroller.

As we now foresee the probable conditions, we shall have the help of the following three committees in fresh fruit operations: (1) auction committee, (2) f.o.b. committee, and (3) allotment committee. These committees have already been named and have assisted the Board of Directors in numerous conferences.

As to processed fruit, we foresee the need of a committee for canned fruit juices and a committee for concentrates. Representatives of these types of operations on the Advisory Committee and on temporary interim committees have already contributed much in the discussion of business policies, prospective market conditions, probable volume and plans whereby the growers through Mutual may help to maintain stable markets and furnish support for the prices they will require to be paid by the operators.

Probably all who read this article are as familiar as I with the factors which make for success or failure in the citrus business. It will occur to all of you that a thorough study of production, markets, the general state of the national economy, the form in which the fruit should be marketed, whether as fresh, single strength canned or concentrate, and an understanding of all factors must be had for a realistic adjustment of supplies and prices to trade demands.

So, you will understand why we propose the following plans for studies:

1. Establish a complete information service and use a clearing house set-up to keep all handlers fully informed on the movement, the supplies, f.o.b. prices and the general and special conditions in all the markets.

A well planned information system available to all the Mutual handlers would alone justify all the expense of organization and operation of Mutual. Shippers do not willfully glut the markets nor engage in cut-throat price competition. They have been forced to do so because they have marketed blindly without knowledge of what their fellow shippers were doing and in self defense when cut-throat competition threatened to take away a customer. They, too, want to correct these practices but they can do so only through united action with fairness, tolerance and patience in establishing a business marketing system as a substitute for the thoroughly disorganized past practices.

2. Economic Studies

We propose to go into the economic field and employ the best obtainable talent to give us statistical information, economic advice and, particularly, to analyze and forecast prices. Mutual can establish prices for its members in line with economic conditions and the strengthened marketing structure we shall build.

3. Market Studies.

Mutual proposes to thoroughly study present market outlets, and with the assistance of the marketers who are cooperating with Mutual, to use their combined experience in expanding and developing markets for Florida citrus. We are conscious of the ever increasing production of citrus and our planning for its utilization will be of utmost importance. We must do all we can to prevent surpluses but in the event we do have them we can and must know how to handle them.

Most of us know what should be done. If you or I individually owned all the citrus production, we would do exactly what Mutual plans to do —study the conditions, control the movement into the markets, place fair prices on our products and see that the consumer gets only quality that keeps him a constant customer. The problem is to get the growers and handlers to act with the wisdom and skill of one individual by speaking with one voice and acting in unity through one organization —Florida Citrus Mutual.

When that is accomplished, Florida citrus groves will be worth double what they are today When values are considered, stabilization is important. Buyers don't like the mountain peaks and valleys of Florida citrus. Big profits one season; red ink the next. Under adequate controls, there can be reasonable stability and uniformity in the returns. I sincerely believe that in a short time, Mutual will develop

such strength and controls that we can count upon a stability hitherto unknown in Florida.

Then, too, looking further into the future, we recognize that an industry with the total value of close to $500,000,000, including all the groves and facilities, has seen grapefruit sold for ten cents a box and oranges for twenty five cents to the processors. Sometimes, they couldn't pay more without loss to themselves because the growers failed to organize the industry, which they alone have the legal power to do.

Nevertheless, it remains a tragic fact that an industry worth a half billion dollars, did not manifest sufficient business skill to use these resources for the benefit of all.

We foresee the day when Mutual, in the exercise of its corporate powers, will furnish financial support to its individual members and to its cooperating handlers, so that adequate production loans may be procured and the financing of processed fruit so complete that it need not be dumped onto overcrowded markets with resulting losses to both growers and handlers.

Nor, should Florida longer tolerate unwise marketing practices because of the possible losses from disasters like freezes and hurricanes, if we can find a practical way to insure against such losses. We intend to study this problem with the view of determining if, with a modest assessment upon the fruit on a fair and equitable basis, we can insure against these hazards. If it can be done, and it is not impossible, any such assessment would cost all the growers less than they lose annually because of unwise marketing through the fear of disaster loss.

The growers need never lack for adequate facilities for all their operations; packing houses, canning and concentrate plants. These plants need your fruit. They can get it only through a contract with Mutual. Most of them have helped to organize Mutual and to get it into operation. The others will cooperate if you want them to—want them to badly enough to sign up your fruit in Mutual. Mutual will have the financial power to adjust its operations to the needs of the growers and the cooperating handlers. It can even operate its own facilities if the need arises.

Finally, Mutual is established. Only the lack of interest of the growers can destroy it. It must not fail because we all know full well that Mutual's failure would discourage any organization effort for years to come, and every grower would suffer from the return to the practices which brought us to the brink of ruin in the 1946-47 and the 1947-48 seasons.

Every well informed banker and business man in the state understands this situation. The growers are grateful for their help and sympathetic interest, which is well expressed for all of them in the resolution adopted by the Executive Council of the Florida Bankers Association at Orlando, July 7, 1949, which I quote in part:

"The Florida Bankers Association has long recognized that citrus is foremost in the economy of the State of Florida.

"Citrus growers and processors should unite solidly behind the Florida Citrus Mutual."

Growers Net 72 Millions On Florida Citrus Crop...

Florida citrus growers received eight times more profit for their fruit this season than they did in 1947-48.

Preliminary figures released by the Florida Department of Agriculture showed producers of oranges, grapefruit and tangerines received an average amount of 75 cents per box above cost of production.

Last season, growers barely stayed out of the red with a profit margin of nine cents.

Growers received about $177,000,000 for their fruit this season compared with $54,000,000 in 1947-48.

Costs of cultivation and labor were about the same for bot hseasons — $45,000.000. This does not include taxes or depreciation costs.

This leaves growers making $72,000,000 of clear money this year. Last season only $9,000,000 was netted.

Divided among the estimated 15,000 growers—no one knows exactly how many—this would mean the average for a grower was roughly $5000 against $600 last season.

Some Lose Money

Of course these figures make lots of growers unhappy. Many growers with early and midseason fruit lost money during the 1948-49 season. In fact, some lost even more than they did in the preceding one.

Those producers with oranges marketed after the January freezes in Texas and California were the only ones who really cashed in.

This season's big returns were the second highest in the industry's history. Only in the lush war year of 1945-46 was it higher. Then $125,000,000 in fruit money was turned loose in Florida.

Other war years were good, too, but they couldn't top this season's figure.

The average price per box of fruit this season was $1.23. Last year the average was 58 cents. It costs from 48 to 50 cents to produce a box.

This season's crop is figured at 94,000,000 boxes and the 1948-49 output at 91,000,000 boxes.

PEST CONTROL FOR THE HOME GARDENER

The home gardener's pest control job has been made easier than ever now, thanks to newer scientific pest control chemicals such as TEPP, DDT, 2, 4-D, Chlordane, the "pure gamma isomer," and certain others.

These potent, chemicals have made "multi-purpose effectiveness" possible, that is, they control many different types of pests. In contrast to most older-type chemicals, this saves the home gardener the time and work of extra applications . . . and also gives him improved pest control.

Another important feature of modern design that makes garden pest control easier is the improved manner of packaging. There are handy, pump-action, ready-to-use duster packages, sprayers that attach to the end of the garden hose and make spraying as easy as watering; and snail and slug baits in pellet form that you just toss around the garden from the paths.

Then for the lawn growers, science has finally come out with a lawn "grooming" product that fertilizes the lawn, kills weeds and controls insects—all in one application.

Tentative Program 16th Annual Citrus Growers Institute

At Camp McQuarrie, August 22-28, 1949, Directed By Florida Agricultural Extension Service . . .

Monday, August 22nd

R. E. Norris, County Agent Lake County, in Charge

2:00-6:00 P. M.—Camp Registration.

6:15 P. M.—Supper—Mess Hall.

8:00 P. M.—Assembly—Auditorium.

Tuesday, August 23rd

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements. "Looking Ahead," K. S. McMullen, in charge, M. O. Watkins, chairman.

8:45 A. M.—Welcome—Karl Lehmann, Secretary, Lake County Chamber of Commerce.

Opening Remarks—H. G. Clayton, Director Florida Agricultural Extension Service.

"What the Citrus Concentrate Industry Wants by Way of Quality in Citrus Fruits," Dr. W. R. Roy, Vacuum Foods, Plymouth.

"What the Canning Industry Wants by Way of Quality in Citrus Fruits"—L. L. Recker, President, Florida Canners Association, Auburndale.

"What the Fresh Fruit Industry Wants by Way of Quality in Citrus Fruits"—G. B. Hurlburt, Manager Mount Dora Growers Cooperative, Mount Dora.

"What the Express Fruit Shippers Want by Way of Quality in Citrus Fruits"—Mead Smith, Palmetto, Member, Florida Express Fruit Shippers Association.

12:00—Dinner—Mess Hall.

1:30 P. M.—"The Present Situation with Regard to Tristezia"—Dr. A. F. Camp, Vice-Director in Charge, Citrus Experiment Station, Lake Alfred.

"Experimental Results on Rootstocks for Florida Citrus" — Dr. Frank E. Gardner, Principal Horticulturist, U. S. Subtropical Fruit Field Station, Orlando.

"Trends in Plantings of Florida Citrus Fruits"—Arthur C. Brown, Commissioner, State Plant Board of Florida, Gainesville.

4:30 P. M.—Adjourn—Swimming, Boating, Recreation.

6:15 P. M.—Supper—Mess Hall.

7:30 P. M.—Auditorium.

7:30 P. M.—"The Plans of the Florida Citrus Commission for 1949-50"—Dodge Taylor, Howey, Chairman.

"The Plans of Florida Citrus Mutual for 1949-50"—Walton Rex, Orlando, Member of the Mutual Board.

"The Activities of the Growers Administrative Committee" — Frank Seymour, Lakeland, Manager.

Wednesday, August 24th

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements.

"The Present Situation"—K. S. McMullen, in Charge, F. S. Perry, Chairman.

8:45 A. M.—Address — Harold Mowry, Director, Florida Agricultural Experiment Station.

"The Present Situation"—Dr. J. Wayne Reitz, Chief, Citrus Fruit Division, Fruit and Vegetable Branch, P & M A, Washington.

"Studies on Outbreaks of Citrus Insects"—Dr. Herbert Spencer, Entomologist, U. S. Subtropical Insects Laboratory, Fort Pierce.

"The Timing of Sprays for Producing Fruit for the Fresh Fruit Market"—W. L. Thompson, Entomologist, Citrus Experiment Station, Lake Alfred.

12:00—Dinner—Mess Hall.

1:30—"Furthering Citrus Consumption"—Miss Anna Mae Sikes, Food Nutritionist, Florida Agricultural Extension Service.

The Short Research Grove

1. "History and Obejectives of the Short Research Grove, Including the Variety, Soil Type, Treatments and Overall Results to Date" —R. E. Norris, Lake County Agricultural Agent, Tavares.

2. "The Influence of Different Sources of Nitrogen and the Rate and Time of Fertilizer Application on the Growth, Yield and Maturity of Fruit"—F. K. Knight, Soil Science Foundation, Lakeland.

3. "The Effect of Different Amounts of Potash Fertilizer on the Growth and Yield of Pineapple Oranges as Related to Leaf and Soil Composition"—Dr. Dana Coe, Soil Science Foundation.

4. "The Effect of Varying Amounts of Secondary Nutrients in the Fertilizer on Soil Accumulations and Tree Responses"—Dr. O. C. Bryan, Soil Science Foundation.

"Snails in Citrus Groves"—discussion led by R. E. Norris, Tavares.

4:30 P. M.—Adjourn—Swimming, Boating, Recreation.

6:15 P. M.—Supper—Mess Hall.

8:00 P. M.—Auditorium—Special Program, F. E. Baetzman, in Charge. Special Presentation of Central Florida's Freda Hilton and her "Tom Thumb Follies."

Thursday, August 25th

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements.

"Doing the Job"

K. S. McMullen, in Charge, Fred P. Lawrence, Chairman.

8:45 A. M.—"The Job"—Zach Savage, Associate Economist, Florida Experiment Station.

"Studies of the Orlando Tangelo Disease"—Dr. J. F. L. Childs, U. S. Subtropical Fruit Field Station, Orlando.

"New Citrus Troubles"—Dr. L. C. Knorr, Citrus Experiment Station, Lake Alfred.

"Status of Slow Decline"—Dr. R. F. Suit, Citrus Experiment Station, Lake Alfred.

"Possibilities of Extending the Marketing Season of Florida Oranges by Storage"—Dr. Paul L. Harding, USDA, Orlando.

12:00—Dinner, Mess Hall.

1:30 P. M.—"Boron Deficiency in Citrus"—Dr. Paul F. Smith, USDA, Orlando.

"Importance of pH Control of Soil in a Citrus Grove"—Dr. I. W. Wander, Citrus Experiment Station, Lake Alfred.

"Nutrient Antagonism, in Relation to Citrus" — Dr. Walter

(Continued on page 13)

Citrus Insect Outlook For August, 1949

J. T. GRIFFITHS, JR., AND W. L. THOMPSON, FLORIDA CITRUS EXPERIMENT STATION, LAKE ALFRED

By the time this is published most growers will have completed their summer oil spraying programs. However, since some groves remain to be sprayed, one or two factors are worthy of mention. In all cases, the spraying should be completed as soon as possible because oil sprays applied during August materially affect color and solids. This is particularly important for early and mid-season oranges, but similar effects may be noted on Valencias and grapefruit. The effect on solids is more noticeable on Valencias and the color factor on grapefruit. The early part of August would be a favorable time for controlling red scale and will tend to be an unfavorable one for purple scale. This is due to the fact that Florida red scales have just completed an egg laying period and purple scales are about to enter such a phase. If scale populations have been allowed to build up in excess before the oil spray has been applied, dead wood may result.

During August, most growers will be concerned with sulfur applications for rust mite control. This seems to be a good opportunity to re-emphasize some facts which have been presented before, but which may be of particlar interest at the present time. During the past few weeks a number of growers have been in our office and complained that rust mite infestations were exceptionally heavy. Almost invariably they were asked "Did you make a dormant sulfur application?" and almost without execption the answer was, "No." Dormant applications are recommended only because of purple mite control and the desirability for zinc to be applied prior to the spring growth flush, but also because low infestations of rust mites may be so reduced at that time that less rust mite difficulties will be encountered later during the spring and summer.

The last two years offer interesting contrasts concerning difficulties encountered in rust mite control. In 1948, post-bloom copper-sulfur sprays were applied in late March and April, and oil sprays were delayed until late June because of dry weather. Thus, a long time interval elapsed between the two sprays. Rust mite infestations reached serious proportions in many groves in May and early June and sulfur treatments were necessary at that time. Early rust mite injury was common and this blemish was quite evident on grading belts last fall. By contrast, in 1949, post-bloom sprays were early in some groves, but as a general rule they were delayed as compared with 1948, and oil spraying was started at an earlier date. Thus, there was a short interval between the two applications and rust mites were not as big a problem in May, and early June as they were in 1948. However, many growers encountered May rust mite infestations at the time when oil sprays were to be applied. Thus, the rust mite problem had only been postponed until July as compared with the preceding year. This factor accounts for the fact that many groves required sulfur applications very shortly after oil spraying.

Experience shows that three sulfur applications plus an oil spray usually have to be made between the first of January and October 15. If this program includes both a dormant and a post-bloom sulfur application, there will be less chance of rust mite difficlty later in the year. In this case the grower should have fewer groves in which rust mites are a problem during the normal oil spraying season. The addition of a sulfur application in January or early February will not add materially to the over-all per box cost, but it will add materially to benefits for making a smoother operating spray program and one in which less difficulties from rust mites are encountered during the spring or summer months.

Where rust mite control is necessary either spraying with wettable sulfur or dusting is safer than using lime-sulfur. This is especially true on early varieties of oranges such as Hamlins. If lime-sulfur is used on late varieties, it should not be used stronger than one gallon per 100 gallons and wettable sulfur should be added to the lime-sulfur solution.

Whether spray or dust is used, a thorough job is of the utmost importance. For satisfactory control when dusting, both sides of the tree must be dusted. Don't expect ½ pound of sulfur dust to cover a tree that they would be sprayed with 15 gallons of spray material (equals 1½ pounds sulfur per tree). A thorough job will be the cheapest job in the long run.

The bird grasshopper did not develop in serious numbers during the spring of 1949. A second hatch will occur sometime in late August or early September. Watch for little ones which have just hatched whereever grasshoppers have been noticed during the spring and summer months. Be prepared to clean cultivate in those groves if these young grasshoppers appear. Cultivation even in August will be perfectly satisfactory as there is no evidence to show that this operation will adversely affect fruit quality.

For further information consult the University of Florida Citrus Experiment Station.

USDA Dedicates New Chemistry Laboratory in Southern California

A new research laboratory, devoted to expanding the uses for fruits and vegetables grown in the Pacific Southwest, was recently dedicated at Pasadena, Calif., by the U. S. Department of Agriculture's Bureau of Agriculture and Industrial Chemistry.

This new Federal laboratory replaces the Bureau's research station in Los Angeles, established in 1912. Funds for the Pasadena building were provided under the Research and Marketing Act of 1946, and construction began about a year ago.

In announcing the dedication, Dr. G. E. Hilbert, chief of the Bureau, states that the new laboratory will, for the first time, give growers and processors of citrus fruits and other agricultural products in southern California adequate facilities for research on the utilization of these commodities. The work at Pasadena will continue on a more extensive scale the valuable research service to the fruit and vegetable industries of the region that has been furnished during the past 37 years by the Bureau's Los Angeles laboratory.

The Citrus Industry

with which is merged The Citrus Leaf
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VIEWING THE FLORIDA CITRUS SITUATION

Mutual Prepares for Action. Fully aware of its opportunities and its responsibilities, Florida Citrus Mutual is preparing to grasp those opportunties and meet those responsibilities in the season just ahead. Control of distribution that disorderly marketing may be eliminated; establishment and enforcement of minimum price regulations; allotment of volume to shippers; allotment of supplies to various auction markets; establishment of f. o. b. prices on fresh fruit, establishment of on-tree-prices for fruit going to canners and processors. These are among the immediate steps contemplated by Mutual. With more than 80 percent of the state tonnage already signed up, Mutual is now conducting a vigorous campaign for still greater tonnage, with at least 90 percent as the goal. This campaign is reported to be meeting with generous support. At Frosproof it is stated that not only 90 percent of the tonnage but 90 percent of the grove owners have been signed.

Florida's Vast Citrus Acreage. Florida now has 400,000 acres of bearing citrus groves, vastly more than any other citrus producing area. In addition, it is estimated that there are 48,000 acres of non-bearing groves which are coming into bearing at the rate of 12,000 acres per year. With an annual production of just around 100,000,000 boxes now, it is clear that still greater production is just around the corner. To market this constantly increasing production at a profit to the grower some overall control is essential. Florida Citrus Mutual provides such control.

Rich Returns to Growers. The Florida State Department of Agriculture reports that Florida's citrus crop for the 1948-49 season brought an aggregate return of $177,000,000. After deducting the cost of production, picking and transportation figured at approximately $105,000,000, citrus growers received for their crop a profit of $72,000,000, against a less-than-production-cost for the two previous years. Cold damage in Texas and California was responsible for much of this prosperity for Florida growers.

Concentrate Plants Make Contracts. Two concentrate plants operating in Florida have made contracts with many growers for the new ripening orange crop at minimum prices of $1.00 per box, with the proviso that they will meet all market prices above the $1.00 figure. The $1.00 per box minimum rules when market prices fall below that figure. Growers who at times have sold their oranges at 25 cents per box delivered at processing plants are greatly encouraged over the certainty of receiving at least $1.00.

"Big Money" Has Faith in Florida Citrus. Sale of two vast Florida citrus properties in the last few days to interests already owning similar properties is evidence that "big money" has faith in the future of the Florida citrus industry. The William P. McDonald properties at Auburndale, comprising 3000 acres of grove property, a grove packing house, canning plant and concentration plant was sold at a stated price of $3,500,000, to the Clinton interests, owners of Snow Crop, which already has a big concentrate plant at Dunedin. Pasco Packing Co., Dade City, world's largest citrus canning and processing enterprise, purchased the Floridagold properties with plants at Lake Alfred, Eagle Lake and Dundee, together with 1100 acres of grove property. Yes, "big money" has faith in Florida citrus.

Increase Advertising Fund. The Florida Citrus Commission has tentatively approved a national advertising fund of $1,800,000, an increase of $400,000 over last season. This fund will be spent largely in newspapers and national and trade magazines. The matter of radio advertising is as yet undecided. While the total appropriation is tentatively set at $1,800,000, the final sum may be more or less, since the advertising fund is raised by a per box assessment on fruit and depends upon the size of the crop. However, barring an act of Providence, the final figure should not be far from the anticipated revenue.

Commission Employs Evans. The Florida Citrus Commission completed its organization by the selection of Robert C. Evans as general manager, succeeding Marvin H. Walker who resigned to join Florida Citrus Canners Cooperative at Lake Wales. Mr. Evans formerly served the commission in the same capacity, resigning in December 1947 to engage in business in Lakeland.

Commission Adopts Citrus Code. The Florida Citrus Commission has adopted rules and regulations conforming to the recently enacted citrus legislation passed by the late session of the Florida legislature and popularly known as the Warren bill. Some dissatisfaction was manifest at the meeting at which the rules were adopted by the Commission. Two of the canners' organizations voiced their dissatisfaction and indicated that legal steps may be taken to question the constitutionality of the law. Some advocates of the legislative provision for the shipment of fruit by truck with only maturity tests were disappointed to learn that interstate shipments are controlled by the Federal government and that the state law will be of no effect, unless sanctioned by the Federal Department of Agriculture.

Report on Fertilizer Experiments

In An Orange Grove In The Eastern Everglades

(Concluded From Last Issue)

In studying soils from rather widely different parts of Florida, Jamison (4) found little difference, by laboratory methods, in the fixation of copper in the presence and absence of superphosphate. In lysimeter experiments on virgin Norfolk fine sand Erwin (1) found that copper in the plant was decreased and copper in the leachate was increased as the phosphorus in the soil was increased up to a certain level. Beyond this level of phosphorus the leaching of copper was depressed. While the data included in Table 3 and the experiments of Erwin (1) definitely indicate that soil applications of soluble phosphorus influence copper assimilation, this influence may be indirect and due to some factor other than straight fixation of copper by phosphate.

At the conclusion of the experiment the trees on the no phosphate plots were smaller and showed much less vegetative growth than the other treatments. The foilage was smaller with a somewhat narrow and stunted appearance. the small amount of phosphate carried by the caster pomace used as a portion of the nitrogen source in the mixed fertilizer and cross rooting between plots probably prevented the appearance of more serious phosphate deficiency symptoms.

Potash treatments during most of the experiment were 12 and 24 percent derived from the sulfate and 48 percent derived from muriate. As shown in Table 1, the two highest average yields were from treatments 16 and 7 (48 and 24 percent K2O, respectively). These two treatments were consistently good producers throughout the entire period of the experiment. However, where nitrogen and phosphorus were held constant, the differences in yield with respect to potash were not statistically significant. The 48 percent potash treatment produced a relatively high percentage of large, coarse fruits that were somewhat wrinkled and green, particularly around the stem end. Many were slightly misshapen. There was no difference between the various potash treatments with respect to tree growth or appearance so far as could be determined from observation.

The results of this eleven-year experiment may be summed up briefly. On most Davie soils (14 percent organic matter or over) nitrogen is not normally a necessary fertilizer ingredient. Phosphate fertilization is essential to satisfactory production over a prolonged period. The insoluble sources of phosphate may be used if applied at appropriate rates. A moderate amount of superphosphate (6 percent in the mixed fertilizer) gives good results and is safer to use than larger amounts. The level at which potash would become a limiting factor in production is below 12 percent K2O. It is doubtful that rates of application much above this would prove profitable. Muriate of potash is no more toxic or

TABLE 1.—AVERAGE ANNUAL YIELD OF FRUIT PER TREE FOR THE NINE-YEAR PERIOD COVERED BY THE EXPERIMENT.

No. [1]	Treatment [4]	Average Yield lbs. per tree	Statistically Equal at: [2] 5%	1%
16	3-6-48 (muriate) [3]	285	a	a
7	3-6-24	283	a	a
14	3-6-12 (di-calcium phos.)	270	a	ab
11	3-18-12 (rock phos.)	269	a	ab
2	0-12-24 [5]	267	a	ab
6	3-6-12	261	ab	ab
12	3-6-12 (colloidal phos.)	259	ab	ab
13	3-6-12 (basic slag)	257	ab	ab
10	6-6-12	255	ab	ab
1	0-12-12 [6]	249	ab	ab
9	3-12-24	248	ab	ab
8	3-12-12	225	bc	bc
5	6-0-12	225	cd	cd
4	3-0-12	186	d	d

1. Treatment numbers are listed in the order of decreasing yields.
2. Treatments followed by the same letters are statistically equal.
3. For the first four years this treatment was a 3-6-12 with potassium carbonate as the potash source. During 1938, 39, 40 and 41 the treatment was a 3-6-24 using muriate. In 1942 the formula was increased to the 3-6-48.
4. Unless otherwise indicated, P2O5 was derived from super-phosphate, K2O from sulfate of potash and N, 1/3 from castor pomace, 1/3 from nitrate of soda, 1/3 from ammonium sulfate.
5. Changed in 1939 from 0-0-12.
6. Changed in 1939 from 0-0-6.

TABLE 2.—EFFECT OF PHOSPHATE TREATMENT ON ACIDITY, RIND THICKNESS, PREHARVEST DROP OF FRUIT AND NUMBER OF CULLS.

No.	Phosphorus Treatment	Citric Acid in Juice [1] Percent	Rind Thickness [1] mm	Preharvest Drop of Fruit [2] Percent	Culls [2] Percent
4	no P2O5	1.99	5.03	70	46
6	6% P2O5 (Super)	1.50	3.51	20	4
8	12% P2O5 (Super)	1.37	3.77	13	7
11	18% P2O5 (Rock)	—	—	14	5
12	6% P2O5 (Colloidal)	1.67	4.13	25	10
13	6% P2O5 (Basic slag)	—	—	27	9

1. Samples collected 2/8/43
2. Average for the 1941, 1942 and 1943 harvest. Percentages calculated on the basis of the number of fruits harvested.

in any way inferior to other sources of potash.

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4. JAMISON, VERNON C. The Effect of Phosphate upon the Fixation of Zinc and Copper in Several Florida Soils. Proc. Fla. State Hort. Soc. 56: 26-30 (1943).

5. NELLER, J. R. and W. T. FORSEE ,JR. Fertilizer Experiments in an Orange Grove in the Eastern Everglades. Proc. Fla. State Hort. Soc. 54: 1-3 (1941).

TABLE 3.—THE EFFECT OF PHOSPHORUS TREATMENT UPON COPPER ASSIMILATION AS INDICATED BY LEAF AND FRUIT ANALYSES AND UPON THE INCIDENCE OF AMMONIATION IN THE FRUIT.

Phosphorus Treatment		Water Sol. P in soil,	Copper, ppm 2, 3				Ammoniation, percent	
Percent	Source	lbs. per Acre	Soil 4	Leaves 4,5	Juice	Seed 4	1944 Crop	1945 Crop 6
none	—	4.2	185	9.6	0.57	10.5	0.4	0.12
6	Super	12.9	260	3.5	0.27	11.5	0.3	0.07
12	Super	34.0	263	1.9	0.15	3.4	24.0	0.05
18	Rock	13.5	—	3.6	—	—	0.1	0.00
6	Colloidal	6.3	—	7.7	—	—	0.1	0.01
6	Basic slag	7.6	—	7.1	—	—	0.1	0.04

1. Based on total P_2O_5 content of source materials used.
2. Copper analyses were made spectrographically by Mr. T. C. Erwin of the Florida Agricultural Experiment Station, Soils Department, Gainesville.
3. Numbers recorded are averages of all samples analyzed from each labeled P_2O_5 group.
4. Oven-dry basis.
5. Average for two sets of samples representing old and new growth.
6. Nutritional sprays, including copper, were used for this crop.

CALIFORNIA-ARIZONA ORANGE ORDER AMENDED

The U. S. Department of Agriculture has announced following approval by growers in a referendum, amendment of the California-Arizona orange marketing order program. The amended order becomes effective November 1, 1949.

Principal amendments provide for (1) the marketing by handlers of early maturity or short-life oranges of a percentage of such fruit equal to the percentage of total fruit to be marketed by all handlers; (2) regulating the handling of oranges marketed within the States of California and Arizona; (3) the addition of provisions permitting the issuance of size regulations; and (4) increasing the committee administering the program to 11 members by the addition of 4 handler members, and setting up grower committee representation by districts insofar as practicable.

In a referendum held during the period March 7 to April 5, 1949, these amendments were favored by 76 percent of the growers voting in the referendum.

Wire baskets are good for collecting eggs in hot weather because they allow rapid circulation of air around the eggs.

TENTATIVE PROGRAM 16TH ANNUAL CITRUS GROWERS INSTITUTE

(Continued from page 8)

Reuther, USDA, Orlando.

"Factors Influencing the Quality of Hamlins on Rough Lemon Stock" —J. W. Sites, Citrus Experiment Station, Lake Alfred.

4:30 P. M.—Adjourn — Swimming, Boating, Recreation.

6:15 P. M.—Supper, Mess Hall.

8:00 P. M.—Auditorium, Entertainment, Motion Pictures, Group Singing, etc. N. H. McQueen, in Charge.

Friday, August 26th

7:45—Breakfast, Mess Hall. Break Camp.

CITRUS INSTITUTE

H. Lightfoot, Lake County Commissioner, Honorary Camp Director.

K. S. McMullen, Extension District Agent, Institute Director.

R. E. Norris, Lake County Agent, Institute Manager.

N. H. McQueen, Charlotte County Agent, Recreation Director.

F. E. Baetzman, Orange County Agent, Ass't. Institute Director.

Mrs. Lucie K. Miller, Lake County Home Demonstration Agent, Hostess.

H. H. Hethcox, Lake County Grower, Registrar.

Reed Hollinger, Lake County Grower, Canteen Manager.

A. H. Whitmore, Secy. Florida Citrus Production Credit Ass'n.,

Floyd Eubanks, Ass't. Lake County Agent, Leader of 4-H Club Detail. Publicity Director.

GOING THROUGH THE MOTIONS

A survey by Industrial Surveys Co. for the U. S. Department of Agriculture reveals that a large proportion of independent grocery stores do not stock even the most common fruits. The survey, made in April this year in a national sample of 4,749 retail food stores, revealed that almost half the stores (43.4%) did not handle fresh grapefruit; almost half (40.8%) did not sell bananas; 30% did not stock apples; 21% did not have oranges; and 30% did not offer lemons. All of these fruits were in fair supply in April.

This survey may help indicate why some stores do a big volume in proportion to their floor space, and others do not, and also why the chains have been gaining. Take grapefruit as an example. Of stores doing $100,000 a year and over, almost all (91%) had grapefruit; but of the stores doing under $50,000 a year only 46.4% had this familiar item.

By class of store, 90% of the chain stores had grapefruit while only 54.3% of the independents carried it. The record on apples is similar. Almost all the chain stores stocked them while only 68.4% of the independents had apples.

Florida Plant Gets Award For Progress . . .

By Food Industries

To Florida Citrus Canners Cooperative for Frozen Concentrated Citrus Juice Process

For outstanding technological achievement in food processing, Florida Citrus Canners Cooperative, Lake Wales, receives the 1949 Food Industries Award. This award — which goes to a company rather than an individual—recognizes the significance of the process for making high-quality frozen concentrated citrus juice.

As a result of this development, the juice is preserved in the near-natural form, with high vitamin C content and excellent flavor. The health-giving product is made widely available to consumers at a reasonable price and in a form permitting economical distribution and convenient use.

In addition to contributing to more pleasant living and better health, the process is helping the citrus inudstry and citrus growers. And what is more important to the food processing industry as a whole, it makes available important new know-how which can be applied to the processing of other liquid food products.

The achievement of 20 years of research and development, the process represents food technology and engineering at its best. By creative thinking and ingenious application of new ideas—plus a great deal of perseverance—the technologists and engineers who made the process possible solved a tough problem of long-standing.

This process received a high score for each of the factors used in evaluating it by the members of the Award Committee. It is of broad significance to the food industry—is highly successful and of economic importance—involves originality in ideas and application of basic principles—is relatively simple and free from probable operating delays and mechanical difficulties —creates a new market for a surplus raw material—and involves high standards with respect to sanitation, purity, appearance and quality of product.

The committee which selected this process as the winner of the FI Award was appointed by the Institute of Food Technologists. It was composed of 26 food technologists connected with universities and colleges. The chairman was Dr. Samuel C. Prescott, Dean Emeritus of Massachusetts Institute of Technology and first president of IFT.

To pick up the story of the development of the revolutionary process for producing frozen concentrated citrus juice, we go back to 1929. At that time, J. L. Heid, now director of research for Florida Citrus Canners Cooperative, was on the staff of the U. S. Fruit & Vegetable Chemistry Laboratory at Los Angeles. There he observed that flash heating in high-velocity tubular heaters permitted the canning of citrus juice with better flavor than could be obtained with kettle heaters.

In the years following, as flash pasteurization gradually came into commercial use, it became evident that extension of the shelf life of canned juices was the next problem for the canning technologist. While means for doing this were being developed, work was also under way to solve the problem of delivering a preserved citrus juice with a flavor which equaled that of juice freshly squeezed from selected fruit.

In tests at the Los Angeles Laboratory, juice was thoroughly deaerated, canned and quick-frozen by immersion in alcohol at —90 deg. F. This was held at 0 deg. for several years without perceptible deterioration in flavor. But container, shipping, and storage costs were high, and facilities for handling the juice at 0 deg. were not generally available.

Equipment for concentrating citrus juice had been improved meanwhile. Time in the evaporator had been shortened, multiple stages introduced, and operating temperatures and pressures lowered. Enough improvement had been made in the product to indicate that it might be possible to concentrate citrus juice without appreciable modification of taste. This could be done, it seemed, if operating temperatures, pressure, and time could be reduced still further.

However, temperature of the available condensing water imposed a limitation on the reduction of operating temperatures—unless uncondensed vapors were pumped or refrigerated condensers were employed.

To make a long story short, juice was concentrated at low pressures without modifying the taste. This was done with equipment and methods planned by L. C. MacDowell, director of research, Florida Citrus Commission, and J. L. Heid, then director of USDA Citrus Products Station, Winter Haven, Fla.

But there was one fault with the concentrated juice. The flavor was flat, because of loss of volatile constituents. Addition of orange oil, as is done with conventional concentrate, improved the flavor. But the investigators improved upon this. They developed a process for concentrating the juice to 60 percent solids, then added sufficient unconcentrated juice to reduce the solids to 42 percent. The result was a concentrate which, when reconstituted after freezing, could not be distinguished by most tasters from freshly squeezed juice.

Engineer Makes Ingenious Suggestion

This was real progress. And Florida Citrus Canners Co-operative decided that the product had commercial possibilities. So they called upon Mojonnier Bros. Co., in 1944, to supply equipment to produce it.

The objective and the problems were discussed with Mojonnier's engineer, J. A. Cross. Among the problems was 80-deg. cooling water. This meant that it would be necessary to compress all vapors through a booster before condensing, or condense the vapors in a refrigerated condenser ahead of the evactors.

Mr. Cross suggested using both sides of a refrigerant compressor system—the heat-pump principle. Water would be evaporated from the juice in one tubular heat exchanger, with heat obtained by condensing compressed ammonia. Then the water vapor would be condensed

in a second tubular heat exchanger by evaporating the liquid ammonia through an expansion valve. This would give an approximately balanced system of high efficiency. In addition, the low temperature of the compressed ammonia (105 deg. F.) would eliminate the hazard of local overheating and permit adoption of the falling-film principle of operation for the evaporator.

The equipment was built and pilot tests conducted in the spring of 1945. These tests were entirely satisfactory, and a commercial plant was designed.

In February, 1948, Florida Citrus Canners Cooperative completed a new and revoluntionary plant at Lake Wales, Fla. Incorporating the equipment and methods developed after the pilot tests, it was designed and built solely for preserving juice of carefully selected citrus fruits, without modification of flavor or food value. The heart of the successful process is quick, high-vacuum low-temperature (50 to 70 deg.) concentration of deaerated juice, followed by blending with unconcentrated juice, slush-freezing, canning and hard-freezing quickly to 0 deg. F.

Close control of quality is another vital factor in the process. Top-grade fruit is inspected, then passed through a brush and spray washer and a detergent tank. A second inspection follows, then another brush and spray washing—this time in water containing 5 ppm.—of free chlorine to give a practically sterile outer surface. After sorting for size by machines, the fruit goes to the extractors. Here again, quality is protected. A tube is inserted in each fruit to drain the juice as the fruit is squeezed, bitter principles being excluded.

People in the industry conservatively estimate that 6,000,000 gal. of the concentrate will be sold this year. This is the equivalent of about 5,000,000 boxes of fruit, or 8 percent of Florida's total orange crop. So the frozen concentrate will materially help Florida growers, who have produced six bumper crops in a row to glut the market and ruin prices recevied by growers.

THREE-FIFTHS CO-OP CANNED AND FROZEN FRUITS SOLD UNDER OWN BRANDS

Cooperatives market more than three-fifths of their canned and frozen fruits and vegetables under their own brands, according to a survey made under the Research and Marketing Act and summarized in Miscellaneous Report 130 of the Farm Credit Administration, U. S. Department of Agriculture.

The survey revealed that the price at the beginning of the season is usually determined by the cost of the pack plus one other factor such as "sufficient margin" or "a fair return to growers." More than half of all co-op processors make at least part of their sales on contracts prior to processing, the survey showed. About three-fourths of their total sales are through brokers and about 95 percent of co-op canned and frozen fruits and vegetables are sold f.o.b. shipping point.

The report, entitled "Marketing Practices of Cooperatives Processing Canned and Frozen Fruits and Vegetables," by Anne L. Gessner of FCA's Cooperative Research and Service Division, covers the year 1947-48 and discusses the sales policies of 70 co-ops processing canned and frozen fruits and vegetables representing about 80 percent of the co-ops in these activities.

The LYONIZER

Department

COMPILED BY THE LYONS FERTILIZER CO.

Reports Of Our Field Men . . .

POLK COUNTY
J. M. (Jim) Sample

Growing conditions are good in this territory and the June-July growth flush was generally satisfactory. Scattered June and July bloom on some varieties is setting but a heavy late bloom is the exception. Many growers are concerned over their grapefruit making the juice requirement next season. Practically all of the grapeit is off-bloom with oblong shape and tending to a thick peel. From experience a few seasons ago, this type fruit is a problem in early season picking on legal juice standards. Some concern is also evidenced by Hamlin and Parson Brown growers regarding the solids problem. Rust mite have been active and sulphur sprays and dusts have been used in many instances delaying the oil spraying on these blocks. Grove labor is plentiful in this area and owners are using it to good advantage in getting their pruning done. The general crop for next season for this section is good with light cropping spotted.

SOUTHWEST FLORIDA
Eaves Allison

July started off with general rains that seem to be continuing along to an extent that should fill up underground reservoirs. Rains seemed to come for a long time in streaks over small areas — a spot here receiving ample moisture while one nearby still suffered from the drought. However, that condition now seems to be straightening itself out. The new citrus crop in some areas looks good and in others is noticeable by its absence. It will not be until later on in the season that a good picture of the whole can be had. Much July bloom has appeared since the rains began. Cover crops in the vegetable and flower growing areas are responding quickly to the rains. Fields from Ruskin to south of Fort Myers are covered with the waving green of crotalaria, sesbania, hairy indigo and the native weeds and grasses. Grove middles are also showing green again and all seems to be in good order for the Summer.

NORTH CENTRAL FLORIDA
V. E. (Val) Bourland

We are continuing to have ample rain in most sections of this territory with groves looking good and cover crops making an excellent growth. In most instances our fruit is sizing up very nicely and it appears that quality will really be found when we start moving fruit to market this Fall. Scale insects are very busy in some groves. Rust mites have been very active and in some instances we have noticed discolored fruit. The discoloration of fruit has not been a result of lack of effort on the part of the grower, but during the past few weeks weather conditions have been very unfavorable for both dusting and spraying. Melanose is showing up badly on the last flush of growth and now some pruning is being done but too late to prevent melanose infestation.

WEST CENTRAL FLORIDA
E. A. (Mac) McCartney

We are getting plenty of rains throughout this territory, however, we can still stand considerable more. Most of the growers are hoping that some program for the regulation of volume to the market will be worked out by Florida Mutual in plenty of time to take care of the coming crop. With groves in general in very fine condition, we find the new crop to be spotty with a particular shortage noticeable in the case of grapefruit. There are so many blooms of both grapefruit and oranges that it is hard to tell at this time with any accuracy about the volume for the coming season, although the prospects generally are for a fair crop. Most every citrus grower in the territory is hoping that next season will be a good one, and they are predicating their hopes on the belief that Florida Citrus Mutual will succeed in accomplishing successful cooperation in the industry.

HILLSBOROUGH & PINELLAS COUNTIES
C. S. (Charlie) Little

Well, we finally closed our citrus shipping season and we are glad to report that it apparently ended to the satisfaction of everyone. As far as moisture is concerned we are in very good shape, but we still haven't had sufficient rain to bring up the lakes very much. Our late bloom has been disappointing. It looked as if we would have a very heavy one after the rains started the first of June but the bloom was spotty and will not add very much to our total yield. Rust mite have been unusually bad this summer and very hard to control. As usual we are having to fight scale insects and are finding that they become increasingly more difficult to control. Most grove owners used a good application of balanced fertilizer this summer and the groves are showing the results. The growth has been excellent, young fruit has sized up well and very few nutritional deficiencies are in evidence. Fruit is small in size for this time of year but we have a fairly good crop and it looks as if it will develop into real quality. Tangerines are especially small for this time of the year. I would like to urge all growers to keep a very close check on rust mite all through the season.

SOUTH POLK, HIGHLANDS & HARDEE COUNTIES
R. L. (Bob) Padgett

It is now possible to see about what kind of crop we can harvest this Fall and next Sphing, and I am glad to report that from all indications we can boast of a fair crop of oranges with grapefruit a little light in many cases. There are three distinct blooms set in this territory. First, the early bloom set where we had plenty of irrigation. Second, the mid-April bloom, where we had light showers, and, Third, the mid-June bloom. It now appears that we will have a great deal of difficulty in picking the early varieties because of this wide variation in bloom. Scale has been very active this Summer and oil spraying has been very general. The long dry spell worked hand and glove with the scale infestations and the damage is easily found. Rust mite has been very active for the past sixty days, with heavy infestations reported in all sections. Vegetable growers in Hardee county are preparing their land for Fall planting. A large acreage of new land has been readied for plantings in this section and most growers have been busy checking their soils and making corrective treatments. Prospects in general look good in this territory — first for a good crop, and second, for a fair market for all products.

WEST CENTRAL FLORIDA

By E. A. (Mac) McCartney

"And that's what it is, 'God's Country,' " with lakes and hills and hardwood forests, good land and mild winters, a real Fall season and a real Spring. Beginning in south Alachua and Marion counties run a belt of really good soil where anything will grow. This is the north end of the Lake country, and here the hills are covered with big oaks, hickories and magnolias, and the old time piney woods grow tall and thick. Passing on down through Lake and Sumter this good soil crops out again in Hernando and Pasco counties, with their hills and high hammocks and good brown land.

Here it was the old timers picked out to settle and plant the first orange groves. And what a job that was! No such thing as a bulldozer pushing over a few blackjacks and palmettoes and here's your land ready. No sir. This old land was cleared the hard way, with ax and grubbing hoe, sweat, dynamite and fire. But these early groves and farms paid off and made many of their owners wealthy, and today the sons and grandsons of these old pioneers are still reaping the benefits. Some of the best of these old groves and many of the later plantings were brought up on Lyons fertilizer, and the Lyons Company was one of the State's pioneers in the use of the so-called "secondaries," which have proved to be of such primary importance to good fruit and good prices.

Marion county, with it's fine citrus is especially noted as the originator of the pineapple orange, the home of fine staple farm crops, truck and watermelons. Some of the country's very best pure blood beef cattle are raised here, Herefords, Shorthorns, Angus and the ever present Brahman. Marion county's pasture lands take a back seat to none.

As we move on down into Sumter county we find an intensive early spring cucumber section, where trough cukes pick the first bushel and bring the big early money. Cabbage is also a volume crop here, with tomatoes and peppers, hogs, chickens and cattle rounding out the agricultural picture. Here too Lyons is proud of the production records of it's customers.

Down in Pasco and Hernando counties are many fine old groves and an intensive pasture improvement program that is being watched all over the state. Phenomenal results are being achieved in the development of grass lands, particularly in Hernando county. Lyons Fertilizer Company is proud of it's part in this pasture program.

Over in neighboring Citrus county big ranchers have gone in more for volume pasturage of the sand hill variety, but here too pasture improvement is gaining every year. Near Inverness, on the Tsala-Apopka chain of lakes, and in the Withlacootchee valley are some very fine citrus groves, and over on the west side of the towns of Crystal River and Homosassa offer some of the best fishing for both salt and fresh water varieties to be found anywhere. Now humming with progress, only a few years ago Citrus was one of our few remaining frontier counties.

More people every year are finding out about the beautiful hill and lake country of West Central Florida.

FRESH ORANGE JUICE KEEPS FLAVOR ON LONG TRIPS TO MARKET

(Continued from page 14)

be kept at 30 degrees F. until consumed in order to preserve its fine flavor. This temperature is several degrees lower than that generally maintained in household refrigerators.

Orange juice prepared by this method will retain its flavor and vitamin-C content for 2 weeks or longer under refrigeration. The particles of pulp left in the juice do not settle to the bottoms of containers, and during the short period in which the juice is normally shipped and stored its microbial count (indicating presence of microorganisms, including bacteria) actually decreases if the product is held consistently at 30 degrees F.

Bureau researchers point out that this orange juice must compete with other products now on the market, such as canned juice, the new frozen concentrated juice (developed by Florida Citrus Commission and citrus industry in cooperation with the Bureau's laboratory at Winter Haven, Fla.), and the fresh fruit itself. Main economic advantage of the process is that it enables restaurants and other large users of orange juice to save on costs of preparing this food for their customers. It also assures them of a high-quality product. For the same reasons many food-service establishments are inteested in purchasing peeled potatoes and other partially or wholly prepared foods that relieve them of burdensome overhead and labor costs. In buying these products, users share in the advantages of modern, large-scale, labor-saving devices developed for food processing. Many families, of course, are also interested in obtaining high-quality fresh orange juice ready for consumption.

REPORT ON FERTILIZER EXPERIMENTS IN AN ORANGE GROVE IN THE EVERGLADES

(Continued from page 15)

treatment have been discussed in detail in a previous report (2).

As early as 1941 ammoniation symptoms had become quite evident on treatments 8 and 9 which had received the heaviest superphosphate applications since the beginning of the experiment. The seriousness of this condition increased each year. In 1944 a nutritional spray program including copper was initiated on the entire grove. This practically eliminated ammoniation from the 1945 crop (Table 3).

Since ammoniation is a symptom of copper deficiency, evidence is rather conclusive that the higher amounts of available phosphorus in the soil has interfered with copper assimilation by the trees. The extent and relation of copper deficiency symptoms as evidenced by ammoniation to phosphate treatment in this set of plots has been mentioned by Forsee and Allison (3). Copper analyses made on soil, leaf and fruit samples from certain treatments representing various soil levels of phosphorus supplied from soluble and insoluble sources are recorded in Table 3 along with the percent ammoniation.

The soil analyses for total copper indicate that the trees on the phosphate treated plots had access to as much or more copper than those on the plots receiving no phosphorus. However, as the superphosphate treatment increased the assimliation of copper decreased as is evidenced by the copper contents of the leaves, juice and seeds. Leaf samples from the colloidal and basic slag treatments show copper values intermediate between the no phosphate and the 6 percent superphosphate treatments while samples from the rock phosphate treatment show copper values approximately the same as the 6 percent superphosphate treatments. This correlates with the water soluble phosphorus contents of the soil (Table 3) and indicates that copper assimilation by the tree is inversely proportional to the amount of active phosphorus in the soil.

(Concluded Next Issue)

BRITISH FRUIT SUPPLIES ARE INCREASING

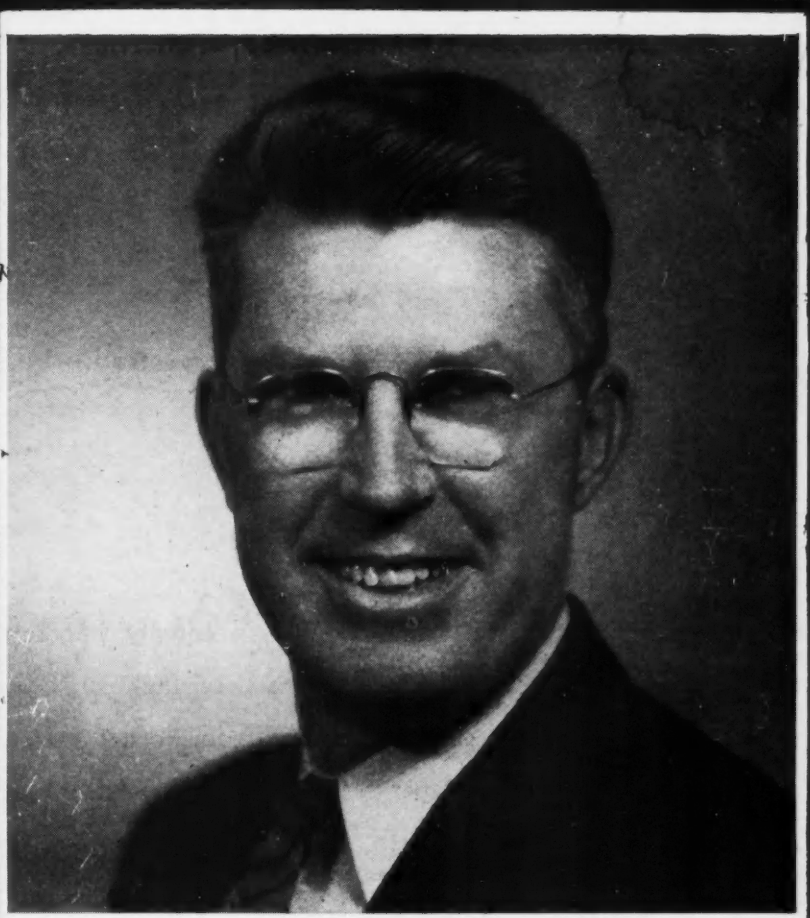
Total supplies of fruit in England are beginning to approach prewar quantities, according to Fred A Motz, U. S. Department of Agriculture marketing specialist, who has been conducting a study of foreign outlets for, and competition with, United States fruit for the Office of Foreign Agricultural Relations. The study was authorized under the provisions of the Research and Marketing Act.

Mr. Motz, who is now in France, says in a preliminary report on the fruit marketing situation in the United Kingdom that the source of England's imported fruit has shifted, the currency situation eliminating United States and Canadian apples which, prior to World War II accounted for about two-thirds of Britain's apple imports. Also, the quality of supplies has dropped, in comparison with prewar standards. British criticism has been voiced regarding the quality of apples imported from certain European countries which, in the absence of normal supplies from the Western Hemisphere, have found a market in the United Kingdom. Fruit importers, handlers and consumers now are expressing interest in renewal of fruit imports from the United States.

Many retail shops in London no longer sell fruit exclusively, and now are handling vegetables and other commodities by reason of business necessity.

Classified Ads

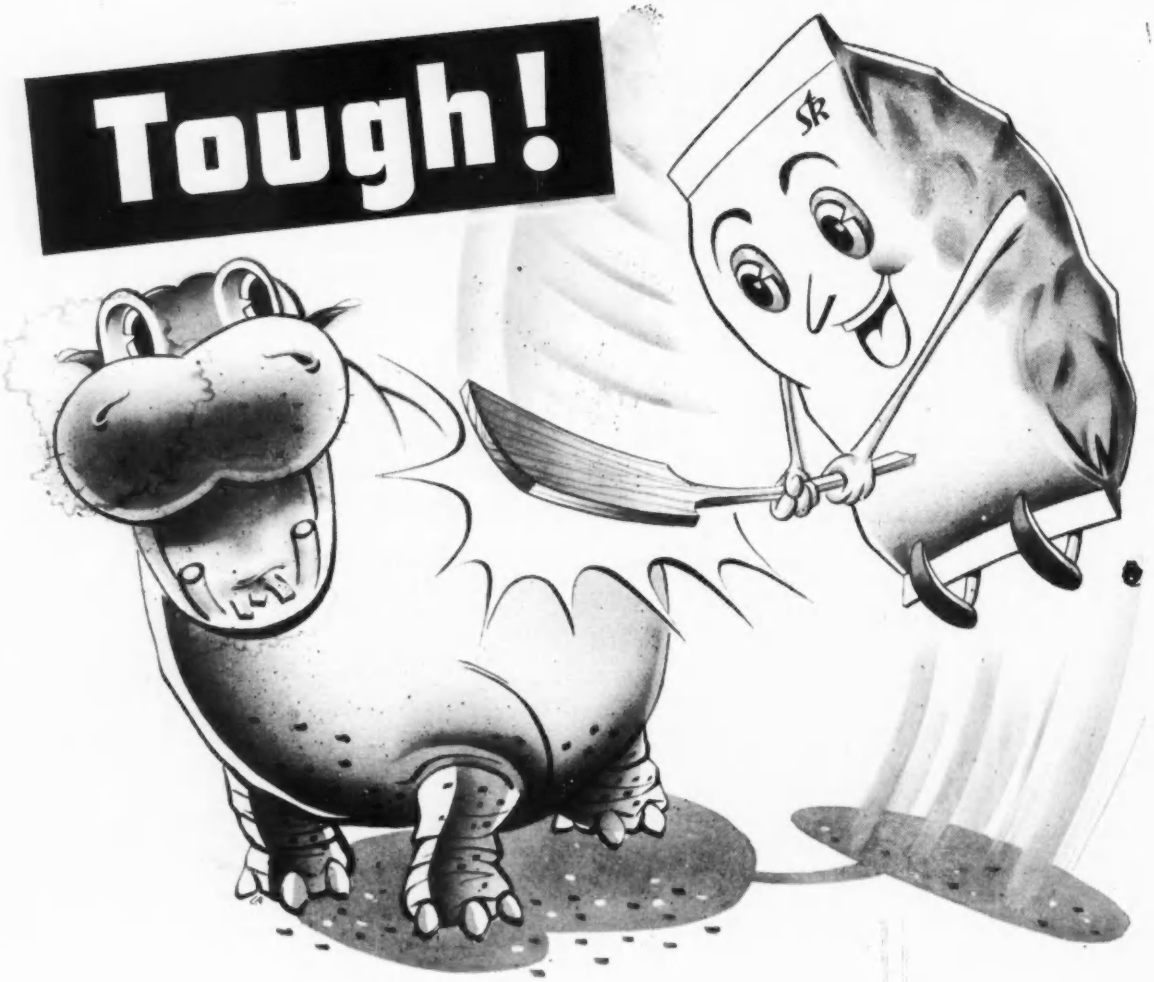
The Citrus Industry



ROBERT C. EVANS

Recently appointed General Manager Florida Citrus Commission, a position he had held before, resigning in December, 1947

Tough!



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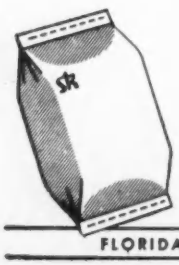

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Florida Ranks First In Citrus Prospects . . .

The United States Department of Agriculture report on citrus prospects as of July 12 shows that Florida is by far in better condition than other producing areas of the United States.

Florida's crops flourished in June when May drouth was relieved by almost daily showers. Field crops and citrus groves made a strong comeback and by the first of July, growers are reporting better than average production prospects for practically all general field crops. The first week in July just about wrote the finish of the 1948-49 season for citrus fruits (except limes) and vegetables. Tobacco harvest is well along, while a poor crop of oats was cut last month.

Grapefruit prospects brightened during June when condition increased 3 points to 63 percent of a full crop, comparable with 62 last year. Orange condition dropped 2 points from 70 on June 1 to 68 July 1 and 70 percent July 1, 1948. Tangerines at 53 percent compares with 62 June 1 and 59 percent a year ago.

Growing conditions were good during June in all important citrus areas of the country, but prospects for 1949-50 citrus crops vary sharply, with the best outlook in Florida and the poorest in Texas. **Florida** citrus groves are in good condition and new-crop prospects are good. Frequent rains in June eliminated the threat of drought damage.

In **Texas,** a very short crop continues in prospect for 1949-50. The regular bloom was light, following the January freeze, and a late bloom has failed to materialize. The light set of fruit is sizing well and may be ready for market earlier than usual. A few groves show good recovery from the freeze, but in most groves the growth of new wood has been slow and new leaves are small. Condition of oranges is reported at 15 percent, grapefruit 12 percent compared with 57 and 51 percent last year.

California citrus trees bloomed much later than usual this season and fruit is therefore small in size for this time of year. The lemon bloom has been particularly late and light; however lemons bloom over a long period and a good set of fruit can still materialize. Lemons sustained the heaviest damage from the January freeze. Condition of California oranges is reported at 79 percent of a full crop, (Navels 77, Valencias 80) compared with 10-year average of 77 and 82 in July of 1948.

CARE URGED IN USE OF PARATHION

Special precaution in handling parathion, one of the newest and most effective insecticides, is advised by the State Board of Health.

The warning was especially directed to workers in insecticide and fertilizer plants where the substance is mixed.

Caution shou'd also be used when insecticides containing parathion are used as sprays on farms and in citrus groves. Insecticides containing the substance carry labels, warning that they should not be used as household sprays.

A set of directions for handling this material has just been published by U. S. Public Health Service. According to that agency, special precautions are needed because parathion can be absorbed through the skin. Work clothes should be laundered daily and parathion mixers should wear rubber boots and gloves. A shower bath at the end of the day's work is advised. If parathion gets on the skin, it should be washed off immediately.

The Citrus Industry
EXCLUSIVE SPECIALIZED CITRUS PUBLICATION
Issued Monthly
Representative of every interest
Representing no special interest

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Looking Ahead With Mutual

A VERNON SAURMAN,
PRSIDENT

When one looks back upon the citrus industry with its years of turmoil, its area and individual animosities, and compares the situation then with the fairness and generous spirit of the men who built Mutual and are now planning its program, he is forced to believe that we still live in the age of miracles. 6,500 growers, representing about 80% of Florida's citrus production, have united under the Cooperative Act of the State of Florida in compliance with the federal Capper-Volstead Act, to run their own business on a sound basis.

It has required nearly 18 months of incessant work and a large investment in money, both of which have been contributed by growers, shippers, processors, bankers and business men whose generosity and public spirit have marked a new high in the State's economic life.

Most of the readers of "The Citrus Industry" know the form, powers and purposes of Mutual as set forth in the Charter, By-Laws and the growers' and handlers' contracts. So, I shall summarize these in just a few words, going on, then, to my subject: "Mutual Looks Ahead."

The Capper-Volstead Act permits organization of growers to collectively control the marketing of their products, thus operating "for their mutual benefit." Such organizations are exempt from the general provisions of the anti-trust laws. They may arrange for orderly movement of fruit to market to avoid disastrous gluts, and in behalf of their members, negotiate the prices at which fruit shall be sold whether to fresh fruit buyers in the auction and fob markets or to the operators of canning and concentrate plants.

Mutual's charter gives it broad powers and lists a large number of important purposes and objectives. This young cooperative giant will not exercise all of them from the beginning; some, because the work is now being done by other agencies, for example, the advertising program of the Florida Citrus Commission; others, because Mutual wants to devote its present energies to the most pressing immediate problems. In time it will build a complete program out of the experience of the industry working harmoniously together. As one reexamines its powers, he is convinced that the growers thus working together can handle any problem or develop any program which, in their united judgment, will contribute to a more stable and successful citrus industry.

Under the By-Laws, the growers have complete control of Mutual operations. They elect all the grower directors. Those directors select the management and are responsible for it. They choose the handlers' Advisory Committee. This committee is as the title implies—purely advisory. They may be selected, discharged and their advice followed or not followed as the grower board decides. At this point, I want to state that the members of the Advisory Committee, as well as many, many other handlers, have been most cooperative, generous of their time and extremely helpful in building a sound marketing program for the 1949-50 season.

Every grower member, regardless of the acreage he owns, has the same voice in the management of Mutual:—one member, one vote.

Before looking to the future and discussing plans and policies, let's pause a moment to examine one act of Mutual which so effectively demonstrates what can be done when men of goodwill with a common interest work together. I refer to the voluntary allotment program which was developed by Mutual and administered by the Florida Citrus Commission. In the judgment of citrus operators, this one act of leadership, even before Mutual had 75% of the tonnage signed up to give it the legal power to operate, increased the returns for Florida oranges during the past season by many millions of dollars. This alone justifies the faith of its organizers and compensates those who have sacrificed so much to bring it into being and to plan its future.

The Mutual Board of Directors and the Advisory Committee have devoted themselves to the major

problems: the planning of the orderly movement of the fruit into the markets and the building of a program which will assure to the growers profitable returns for their fruit through the correction of marketing chaos and the elimination of cut-throat competition. The plans for the achievement of these objectives were stated by the Mutual Board, July 22, the substance of which is:

1. The regulation of the volume of fresh fruit shipments, with weekly allotments to shippers on a basis adjusted as crop conditions may warrant.

2. The allotment of fresh fruit shipments to metropolitan auction areas, whenever such allotments become necessary, with allotments to shippers recognizing their historic position in such markets.

In its regulation of the volume of fresh fruit shipments, Mutual will announce weekly allotments for all interstate shippers, and will seek the cooperation of all shippers in observing such allotments—to make this regulation as effective as possible in the absence of a Federal marketing agreement regulation.

3. The establishment of minimum prices on f.o.b. sales of fresh fruit whenever such minimum prices are necessary to stabilize marketing conditions and to achieve a more orderly distribution.

4. The establishment of minimum on-tree prices for the fruit of its members utilized by canning and concentrating plants.

The achievement of the objectives of the foregoing program will require the cooperation of the entire industry, both growers and handlers collectively. There is enough ability, experience, and financial strength to make a success of these and other plans. The fault in the past has been that the individual ability, experience and financial strength has been used in destructive competition against every other individual, and the growers have always suffered most in this conflict. Mutual is confident of its power when, finally, they are using their talents and resources in unity and in furtherance of the prosperity of all.

You will be interested in learning something about our thinking as to the administrative and management personnel who will be required to put these policies into practical operation.

The pattern suggested below has not yet been set up and the administrative structure must, of course, be finally determined as we come closer to the conditions and operating problems of next season.

In brief, however, Mutual's management will be controlled by the growers through the Board of Directors with the help and advice of the handlers' Advisory Committee. It is anticipated that the organization will require a general manager who will be assisted by: (1) fresh fruit maanger, (2) processed fruit manager, (3) economist and analyst, (4) public relations expert, and (5) financial auditor or comptroller.

As we now foresee the probable conditions, we shall have the help of the following three committees in fresh fruit operations: (1) auction committee, (2) f.o.b. committee, and (3) allotment committee. These committees have already been named and have assisted the Board of Directors in numerous conferences.

As to processed fruit, we foresee the need of a committee for canned fruit juices and a committee for concentrates. Representatives of these types of operations on the Advisory Committee and on temporary interim committees have already contributed much in the discussion of business policies, prospective market conditions, probable volume and plans whereby the growers through Mutual may help to maintain stable markets and furnish support for the prices they will require to be paid by the operators.

Probably all who read this article are as familiar as I with the factors which make for success or failure in the citrus business. It will occur to all of you that a thorough study of production, markets, the general state of the national economy, the form in which the fruit should be marketed, whether as fresh, single strength canned or concentrate, and an understanding of all factors must be had for a realistic adjustment of supplies and prices to trade demands.

So, you will understand why we propose the following plans for studies:

1. Establish a complete information service and use a clearing house set-up to keep all handlers fully informed on the movement, the supplies, f.o.b. prices and the general and special conditions in all the markets.

A well planned information system available to all the Mutual handlers would alone justify all the expense of organization and operation of Mutual. Shippers do not willfully glut the markets nor engage in cut-throat price competition. They have been forced to do so because they have marketed blindly without knowledge of what their fellow shippers were doing and in self defense when cut-throat competition threatened to take away a customer. They, too, want to correct these practices but they can do so only through united action with fairness, tolerance and patience in establishing a business marketing system as a substitute for the thoroughly disorganized past practices.

2. Economic Studies

We propose to go into the economic field and employ the best obtainable talent to give us statistical information, economic advice and, particularly, to analyze and forecast prices. Mutual can establish prices for its members in line with economic conditions and the strengthened marketing structure we shall build.

3. Market Studies.

Mutual proposes to thoroughly study present market outlets, and with the assistance of the marketers who are cooperating with Mutual, to use their combined experience in expanding and developing markets for Florida citrus. We are conscious of the ever increasing production of citrus and our planning for its utilization will be of utmost importance. We must do all we can to prevent surpluses but in the event we do have them we can and must know how to handle them.

Most of us know what should be done. If you or I individually owned all the citrus production, we would do exactly what Mutual plans to do —study the conditions, control the movement into the markets, place fair prices on our products and see that the consumer gets only quality that keeps him a constant customer. The problem is to get the growers and handlers to act with the wisdom and skill of one individual by speaking with one voice and acting in unity through one organization —Florida Citrus Mutual.

When that is accomplished, Florida citrus groves will be worth double what they are today When values are considered, stabilization is important. Buyers don't like the mountain peaks and valleys of Florida citrus. Big profits one season; red ink the next. Under adequate controls, there can be reasonable stability and uniformity in the returns. I sincerely believe that in a short time, Mutual will develop

such strength and controls that we can count upon a stability hitherto unknown in Florida.

Then, too, looking further into the future, we recognize that an industry with the total value of close to $500,000,000, including all the groves and facilities, has seen grapefruit sold for ten cents a box and oranges for twenty five cents to the processors. Sometimes, they couldn't pay more without loss to themselves because the growers failed to organize the industry, which they alone have the legal power to do.

Nevertheless, it remains a tragic fact that an industry worth a half billion dollars, did not manifest sufficient business skill to use these resources for the benefit of all.

We foresee the day when Mutual, in the exercise of its corporate powers, will furnish financial support to its individual members and to its cooperating handlers, so that adequate production loans may be procured and the financing of processed fruit so complete that it need not be dumped onto overcrowded markets with resulting losses to both growers and handlers.

Nor, should Florida longer tolerate unwise marketing practices because of the possible losses from disasters like freezes and hurricanes, if we can find a practical way to insure against such losses. We intend to study this problem with the view of determining if, with a modest assessment upon the fruit on a fair and equitable basis, we can insure against these hazards. If it can be done, and it is not impossible, any such assessment would cost all the growers less than they lose annually because of unwise marketing through the fear of disaster loss.

The growers need never lack for adequate facilities for all their operations; packing houses, canning and concentrate plants. These plants need your fruit. They can get it only through a contract with Mutual. Most of them have helped to organize Mutual and to get it into operation. The others will cooperate if you want them to—want them to badly enough to sign up your fruit in Mutual. Mutual will have the financial power to adjust its operations to the needs of the growers and the cooperating handlers. It can even operate its own facilities if the need arises.

Finally, Mutual is established. Only the lack of interest of the growers can destroy it. It must not fail because we all know full well that Mutual's failure would discourage any organization effort for years to come, and every grower would suffer from the return to the practices which brought us to the brink of ruin in the 1946-47 and the 1947-48 seasons.

Every well informed banker and business man in the state understands this situation. The growers are grateful for their help and sympathetic interest, which is well expressed for all of them in the resolution adopted by the Executive Council of the Florida Bankers Association at Orlando, July 7, 1949, which I quote in part:

"The Florida Bankers Association has long recognized that citrus is foremost in the economy of the State of Florida.

"Citrus growers and processors should unite solidly behind the Florida Citrus Mutual."

Growers Net 72 Millions On Florida Citrus Crop...

Florida citrus growers received eight times more profit for their fruit this season than they did in 1947-48.

Preliminary figures released by the Florida Department of Agriculture showed producers of oranges, grapefruit and tangerines received an average amount of 75 cents per box above cost of production.

Last season, growers barely stayed out of the red with a profit margin of nine cents.

Growers received about $177,000,000 for their fruit this season compared with $54,000,000 in 1947-48.

Costs of cultivation and labor were about the same for bot hseasons — $45,000.000. This does not include taxes or depreciation costs.

This leaves growers making $72,000,000 of clear money this year. Last season only $9,000,000 was netted.

Divided among the estimated 15,000 growers—no one knows exactly how many—this would mean the average for a grower was roughly $5000 against $600 last season.

Some Lose Money

Of course these figures make lots of growers unhappy. Many growers with early and midseason fruit lost money during the 1948-49 season. In fact, some lost even more than they did in the preceding one.

Those producers with oranges marketed after the January freezes in Texas and California were the only ones who really cashed in.

This season's big returns were the second highest in the industry's history. Only in the lush war year of 1945-46 was it higher. Then $125,000,000 in fruit money was turned loose in Florida.

Other war years were good, too, but they couldn't top this season's figure.

The average price per box of fruit this season was $1.23. Last year the average was 58 cents. It costs from 48 to 50 cents to produce a box.

This season's crop is figured at 94,000,000 boxes and the 1948-49 output at 91,000,000 boxes.

PEST CONTROL FOR THE HOME GARDENER

The home gardener's pest control job has been made easier than ever now, thanks to newer scientific pest control chemicals such as TEPP, DDT, 2, 4-D, Chlordane, the "pure gamma isomer," and certain others.

These potent, chemicals have made "multi-purpose effectiveness" possible, that is, they control many different types of pests. In contrast to most older-type chemicals, this saves the home gardener the time and work of extra applications . . . and also gives him improved pest control.

Another important feature of modern design that makes garden pest control easier is the improved manner of packaging. There are handy, pump-action, ready-to-use duster packages, sprayers that attach to the end of the garden hose and make spraying as easy as watering; and snail and slug baits in pellet form that you just toss around the garden from the paths.

Then for the lawn growers, science has finally come out with a lawn "grooming" product that fertilizes the lawn, kills weeds and controls insects—all in one application.

Tentative Program 16th Annual Citrus Growers Institute

At Camp McQuarrie, August 22-28, 1949, Directed By Florida Agricultural Extension Service . . .

Monday, August 22nd

R. E. Norris, County Agent Lake County, in Charge

2:00-6:00 P. M.—Camp Registration.

6:15 P. M.—Supper—Mess Hall.

8:00 P. M.—Assembly—Auditorium.

Tuesday, August 23rd

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements. "Looking Ahead," K. S. McMullen, in charge, M. O. Watkins, chairman.

8:45 A. M.—Welcome—Karl Lehmann, Secretary, Lake County Chamber of Commerce.

Opening Remarks—H. G. Clayton, Director Florida Agricultural Extension Service.

"What the Citrus Concentrate Industry Wants by Way of Quality in Citrus Fruits," Dr. W. R. Roy, Vacuum Foods, Plymouth.

"What the Canning Industry Wants by Way of Quality in Citrus Fruits"—L. L. Recker, President, Florida Canners Association, Auburndale.

"What the Fresh Fruit Industry Wants by Way of Quality in Citrus Fruits"—G. B. Hurlburt, Manager Mount Dora Growers Cooperative, Mount Dora.

"What the Express Fruit Shippers Want by Way of Quality in Citrus Fruits"—Mead Smith, Palmetto, Member, Florida Express Fruit Shippers Association.

12:00—Dinner—Mess Hall.

1:30 P. M.—"The Present Situation with Regard to Tristezia"—Dr. A. F. Camp, Vice-Director in Charge, Citrus Experiment Station, Lake Alfred.

"Experimental Results on Rootstocks for Florida Citrus" — Dr. Frank E. Gardner, Principal Horticulturist, U. S. Subtropical Fruit Field Station, Orlando.

"Trends in Plantings of Florida Citrus Fruits"—Arthur C. Brown, Commissioner, State Plant Board of Florida, Gainesville.

4:30 P. M.—Adjourn—Swimming, Boating, Recreation.

6:15 P. M.—Supper—Mess Hall.

7:30 P. M.—Auditorium.

7:30 P. M.—"The Plans of the Florida Citrus Commission for 1949-50"—Dodge Taylor, Howey, Chairman.

"The Plans of Florida Citrus Mutual for 1949-50"—Walton Rex, Orlando, Member of the Mutual Board.

"The Activities of the Growers Administrative Committee" — Frank Seymour, Lakeland, Manager.

Wednesday, August 24th

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements.

"The Present Situation"—K. S. McMullen, in Charge, F. S. Perry, Chairman.

8:45 A. M.—Address — Harold Mowry, Director, Florida Agricultural Experiment Station.

"The Present Situation"—Dr. J. Wayne Reitz, Chief, Citrus Fruit Division, Fruit and Vegetable Branch, P & M A, Washington.

"Studies on Outbreaks of Citrus Insects"—Dr. Herbert Spencer, Entomologist, U. S. Subtropical Insects Laboratory, Fort Pierce.

"The Timing of Sprays for Producing Fruit for the Fresh Fruit Market"—W. L. Thompson, Entomologist, Citrus Experiment Station, Lake Alfred.

12:00—Dinner—Mess Hall.

1:30—"Furthering Citrus Consumption"—Miss Anna Mae Sikes, Food Nutritionist, Florida Agricultural Extension Service.

The Short Research Grove

1. "History and Obejectives of the Short Research Grove, Including the Variety, Soil Type, Treatments and Overall Results to Date" —R. E. Norris, Lake County Agricultural Agent, Tavares.

2. "The Influence of Different Sources of Nitrogen and the Rate and Time of Fertilizer Application on the Growth, Yield and Maturity of Fruit"—F. K. Knight, Soil Science Foundation, Lakeland.

3. "The Effect of Different Amounts of Potash Fertilizer on the Growth and Yield of Pineapple Oranges as Related to Leaf and Soil Composition"—Dr. Dana Coe, Soil Science Foundation.

4. "The Effect of Varying Amounts of Secondary Nutrients in the Fertilizer on Soil Accumulations and Tree Responses"—Dr. O. C. Bryan, Soil Science Foundation.

"Snails in Citrus Groves"—discussion led by R. E. Norris, Tavares.

4:30 P. M.—Adjourn—Swimming, Boating, Recreation.

6:15 P. M.—Supper—Mess Hall.

8:00 P. M.—Auditorium—Special Program, F. E. Baetzman, in Charge. Special Presentation of Central Florida's Freda Hilton and her "Tom Thumb Follies."

Thursday, August 25th

7:45 A. M.—Breakfast — Mess Hall.

8:30 A. M.—Auditorium — Announcements.

"Doing the Job"

K. S. McMullen, in Charge, Fred P. Lawrence, Chairman.

8:45 A. M.—"The Job"—Zach Savage, Associate Economist, Florida Experiment Station.

"Studies of the Orlando Tangelo Disease"—Dr. J. F. L. Childs, U. S. Subtropical Fruit Field Station, Orlando.

"New Citrus Troubles"—Dr. L. C. Knorr, Citrus Experiment Station, Lake Alfred.

"Status of Slow Decline"—Dr. R. F. Suit, Citrus Experiment Station, Lake Alfred.

"Possibilities of Extending the Marketing Season of Florida Oranges by Storage"—Dr. Paul L. Harding, USDA, Orlando.

12:00—Dinner, Mess Hall.

1:30 P. M.—"Boron Deficiency in Citrus"—Dr. Paul F. Smith, USDA, Orlando.

"Importance of pH Control of Soil in a Citrus Grove"—Dr. I. W. Wander, Citrus Experiment Station, Lake Alfred.

"Nutrient Antagonism, in Relation to Citrus" — Dr. Walter

(Continued on page 13)

Citrus Insect Outlook For August, 1949

J. T. GRIFFITHS, JR., AND W. L. THOMPSON, FLORIDA CITRUS EXPERIMENT STATION, LAKE ALFRED

By the time this is published most growers will have completed their summer oil spraying programs. However, since some groves remain to be sprayed, one or two factors are worthy of mention. In all cases, the spraying should be completed as soon as possible because oil sprays applied during August materially affect color and solids. This is particularly important for early and mid-season oranges, but similar effects may be noted on Valencias and grapefruit. The effect on solids is more noticeable on Valencias and the color factor on grapefruit. The early part of August would be a favorable time for controlling red scale and will tend to be an unfavorable one for purple scale. This is due to the fact that Florida red scales have just completed an egg laying period and purple scales are about to enter such a phase. If scale populations have been allowed to build up in excess before the oil spray has been applied, dead wood may result.

During August, most growers will be concerned with sulfur applications for rust mite control. This seems to be a good opportunity to re-emphasize some facts which have been presented before, but which may be of particlar interest at the present time. During the past few weeks a number of growers have been in our office and complained that rust mite infestations were exceptionally heavy. Almost invariably they were asked "Did you make a dormant sulfur application?" and almost without execption the answer was, "No." Dormant applications are recommended only because of purple mite control and the desirability for zinc to be applied prior to the spring growth flush, but also because low infestations of rust mites may be so reduced at that time that less rust mite difficulties will be encountered later during the spring and summer.

The last two years offer interesting contrasts concerning difficulties encountered in rust mite control. In 1948, post-bloom copper-sulfur sprays were applied in late March and April, and oil sprays were delayed until late June because of dry weather. Thus, a long time interval elapsed between the two sprays. Rust mite infestations reached serious proportions in many groves in May and early June and sulfur treatments were necessary at that time. Early rust mite injury was common and this blemish was quite evident on grading belts last fall. By contrast, in 1949, post-bloom sprays were early in some groves, but as a general rule they were delayed as compared with 1948, and oil spraying was started at an earlier date. Thus, there was a short interval between the two applications and rust mites were not as big a problem in May, and early June as they were in 1948. However, many growers encountered May rust mite infestations at the time when oil sprays were to be applied. Thus, the rust mite problem had only been postponed until July as compared with the preceding year. This factor accounts for the fact that many groves required sulfur applications very shortly after oil spraying.

Experience shows that three sulfur applications plus an oil spray usually have to be made between the first of January and October 15. If this program includes both a dormant and a post-bloom sulfur application, there will be less chance of rust mite difficlty later in the year. In this case the grower should have fewer groves in which rust mites are a problem during the normal oil spraying season. The addition of a sulfur application in January or early February will not add materially to the over-all per box cost, but it will add materially to benefits for making a smoother operating spray program and one in which less difficulties from rust mites are encountered during the spring or summer months.

Where rust mite control is necessary either spraying with wettable sulfur or dusting is safer than using lime-sulfur. This is especially true on early varieties of oranges such as Hamlins. If lime-sulfur is used on late varieties, it should not be used stronger than one gallon per 100 gallons and wettable sulfur should be added to the lime-sulfur solution.

Whether spray or dust is used, a thorough job is of the utmost importance. For satisfactory control when dusting, both sides of the tree must be dusted. Don't expect ½ pound of sulfur dust to cover a tree that they would be sprayed with 15 gallons of spray material (equals 1½ pounds sulfur per tree). A thorough job will be the cheapest job in the long run.

The bird grasshopper did not develop in serious numbers during the spring of 1949. A second hatch will occur sometime in late August or early September. Watch for little ones which have just hatched whereever grasshoppers have been noticed during the spring and summer months. Be prepared to clean cultivate in those groves if these young grasshoppers appear. Cultivation even in August will be perfectly satisfactory as there is no evidence to show that this operation will adversely affect fruit quality.

For further information consult the University of Florida Citrus Experiment Station.

USDA Dedicates New Chemistry Laboratory in Southern California

A new research laboratory, devoted to expanding the uses for fruits and vegetables grown in the Pacific Southwest, was recently dedicated at Pasadena, Calif., by the U. S. Department of Agriculture's Bureau of Agriculture and Industrial Chemistry.

This new Federal laboratory replaces the Bureau's research station in Los Angeles, established in 1912. Funds for the Pasadena building were provided under the Research and Marketing Act of 1946, and construction began about a year ago.

In announcing the dedication, Dr. G. E. Hilbert, chief of the Bureau, states that the new laboratory will, for the first time, give growers and processors of citrus fruits and other agricultural products in southern California adequate facilities for research on the utilization of these commodities. The work at Pasadena will continue on a more extensive scale the valuable research service to the fruit and vegetable industries of the region that has been furnished during the past 37 years by the Bureau's Los Angeles laboratory.

The Citrus Industry

with which is merged The Citrus Leaf
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VIEWING THE FLORIDA CITRUS SITUATION

Mutual Prepares for Action. Fully aware of its opportunities and its responsibilities, Florida Citrus Mutual is preparing to grasp those opportunties and meet those responsibilities in the season just ahead. Control of distribution that disorderly marketing may be eliminated; establishment and enforcement of minimum price regulations; allotment of volume to shippers; allotment of supplies to various auction markets; establishment of f. o. b. prices on fresh fruit, establishment of on-tree-prices for fruit going to canners and processors. These are among the immediate steps contemplated by Mutual. With more than 80 percent of the state tonnage already signed up, Mutual is now conducting a vigorous campaign for still greater tonnage, with at least 90 percent as the goal. This campaign is reported to be meeting with generous support. At Frosproof it is stated that not only 90 percent of the tonnage but 90 percent of the grove owners have been signed.

Florida's Vast Citrus Acreage. Florida now has 400,000 acres of bearing citrus groves, vastly more than any other citrus producing area. In addition, it is estimated that there are 48,000 acres of non-bearing groves which are coming into bearing at the rate of 12,000 acres per year. With an annual production of just around 100,000,000 boxes now, it is clear that still greater production is just around the corner. To market this constantly increasing production at a profit to the grower some overall control is essential. Florida Citrus Mutual provides such control.

Rich Returns to Growers. The Florida State Department of Agriculture reports that Florida's citrus crop for the 1948-49 season brought an aggregate return of $177,000,000. After deducting the cost of production, picking and transportation figured at approximately $105,000,000, citrus growers received for their crop a profit of $72,000,000, against a less-than-production-cost for the two previous years. Cold damage in Texas and California was responsible for much of this prosperity for Florida growers.

Concentrate Plants Make Contracts. Two concentrate plants operating in Florida have made contracts with many growers for the new ripening orange crop at minimum prices of $1.00 per box, with the proviso that they will meet all market prices above the $1.00 figure. The $1.00 per box minimum rules when market prices fall below that figure. Growers who at times have sold their oranges at 25 cents per box delivered at processing plants are greatly encouraged over the certainty of receiving at least $1.00.

"Big Money" Has Faith in Florida Citrus. Sale of two vast Florida citrus properties in the last few days to interests already owning similar properties is evidence that "big money" has faith in the future of the Florida citrus industry. The William P. McDonald properties at Auburndale, comprising 3000 acres of grove property, a grove packing house, canning plant and concentration plant was sold at a stated price of $3,500,000, to the Clinton interests, owners of Snow Crop, which already has a big concentrate plant at Dunedin. Pasco Packing Co., Dade City, world's largest citrus canning and processing enterprise, purchased the Floridagold properties with plants at Lake Alfred, Eagle Lake and Dundee, together with 1100 acres of grove property. Yes, "big money" has faith in Florida citrus.

Increase Advertising Fund. The Florida Citrus Commission has tentatively approved a national advertising fund of $1,800,000, an increase of $400,000 over last season. This fund will be spent largely in newspapers and national and trade magazines. The matter of radio advertising is as yet undecided. While the total appropriation is tentatively set at $1,800,000, the final sum may be more or less, since the advertising fund is raised by a per box assessment on fruit and depends upon the size of the crop. However, barring an act of Providence, the final figure should not be far from the anticipated revenue.

Commission Employs Evans. The Florida Citrus Commission completed its organization by the selection of Robert C. Evans as general manager, succeeding Marvin H. Walker who resigned to join Florida Citrus Canners Cooperative at Lake Wales. Mr. Evans formerly served the commission in the same capacity, resigning in December 1947 to engage in business in Lakeland.

Commission Adopts Citrus Code. The Florida Citrus Commission has adopted rules and regulations conforming to the recently enacted citrus legislation passed by the late session of the Florida legislature and popularly known as the Warren bill. Some dissatisfaction was manifest at the meeting at which the rules were adopted by the Commission. Two of the canners' organizations voiced their dissatisfaction and indicated that legal steps may be taken to question the constitutionality of the law. Some advocates of the legislative provision for the shipment of fruit by truck with only maturity tests were disappointed to learn that interstate shipments are controlled by the Federal government and that the state law will be of no effect, unless sanctioned by the Federal Department of Agriculture.

Report on Fertilizer Experiments

In An Orange Grove In The Eastern Everglades

(Concluded From Last Issue)

In studying soils from rather widely different parts of Florida, Jamison (4) found little difference, by laboratory methods, in the fixation of copper in the presence and absence of superphosphate. In lysimeter experiments on virgin Norfolk fine sand Erwin (1) found that copper in the plant was decreased and copper in the leachate was increased as the phosphorus in the soil was increased up to a certain level. Beyond this level of phosphorus the leaching of copper was depressed. While the data included in Table 3 and the experiments of Erwin (1) definitely indicate that soil applications of soluble phosphorus influence copper assimilation, this influence may be indirect and due to some factor other than straight fixation of copper by phosphate.

At the conclusion of the experiment the trees on the no phosphate plots were smaller and showed much less vegetative growth than the other treatments. The foilage was smaller with a somewhat narrow and stunted appearance. the small amount of phosphate carried by the caster pomace used as a portion of the nitrogen source in the mixed fertilizer and cross rooting between plots probably prevented the appearance of more serious phosphate deficiency symptoms.

Potash treatments during most of the experiment were 12 and 24 percent derived from the sulfate and 48 percent derived from muriate. As shown in Table 1, the two highest average yields were from treatments 16 and 7 (48 and 24 percent K2O, respectively). These two treatments were consistently good producers throughout the entire period of the experiment. However, where nitrogen and phosphorus were held constant, the differences in yield with respect to potash were not statistically significant. The 48 percent potash treatment produced a relatively high percentage of large, coarse fruits that were somewhat wrinkled and green, particularly around the stem end. Many were slightly misshapen. There was no difference between the various potash treatments with respect to tree growth or appearance so far as could be determined from observation.

The results of this eleven-year experiment may be summed up briefly. On most Davie soils (14 percent organic matter or over) nitrogen is not normally a necessary fertilizer ingredient. Phosphate fertilization is essential to satisfactory production over a prolonged period. The insoluble sources of phosphate may be used if applied at appropriate rates. A moderate amount of superphosphate (6 percent in the mixed fertilizer) gives good results and is safer to use than larger amounts. The level at which potash would become a limiting factor in production is below 12 percent K2O. It is doubtful that rates of application much above this would prove profitable. Muriate of potash is no more toxic or

TABLE 1.—AVERAGE ANNUAL YIELD OF FRUIT PER TREE FOR THE NINE-YEAR PERIOD COVERED BY THE EXPERIMENT.

No. [1]	Treatment [4]	Average Yield lbs. per tree	Statistically Equal [2] at: 5%	1%
16	3-6-48 (muriate) [3]	285	a	a
7	3-6-24	283	a	a
14	3-6-12 (di-calcium phos.)	270	a	ab
11	3-18-12 (rock phos.)	269	a	ab
2	0-12-24 [5]	267	a	ab
6	3-6-12	261	ab	ab
12	3-6-12 (colloidal phos.)	259	ab	ab
13	3-6-12 (basic slag)	257	ab	ab
10	6-6-12	255	ab	ab
1	0-12-12 [6]	249	ab	ab
9	3-12-24	248	ab	ab
8	3-12-12	225	bc	bc
5	6-0-12	225	cd	cd
4	3-0-12	186	d	d

1. Treatment numbers are listed in the order of decreasing yields.
2. Treatments followed by the same letters are statistically equal.
3. For the first four years this treatment was a 3-6-12 with potassium carbonate as the potash source. During 1938, 39, 40 and 41 the treatment was a 3-6-24 using muriate. In 1942 the formula was increased to the 3-6-48.
4. Unless otherwise indicated, P2O5 was derived from super-phosphate, K2O from sulfate of potash and N, 1/3 from castor pomace, 1/3 from nitrate of soda, 1/3 from ammonium sulfate.
5. Changed in 1939 from 0-0-12.
6. Changed in 1939 from 0-0-6.

TABLE 2.—EFFECT OF PHOSPHATE TREATMENT ON ACIDITY, RIND THICKNESS, PREHARVEST DROP OF FRUIT AND NUMBER OF CULLS.

No.	Phosphorus Treatment	Citric Acid in Juice [1] Percent	Rind Thickness [1] mm	Preharvest Drop of Fruit [2] Percent	Culls [2] Percent
4	no P_2O_5	1.99	5.03	70	46
6	6% P_2O_5 (Super)	1.50	3.51	20	4
8	12% P_2O_5 (Super)	1.37	3.77	13	7
11	18% P_2O_5 (Rock)	—	—	14	5
12	6% P_2O_5 (Colloidal)	1.67	4.13	25	10
13	6% P_2O_5 (Basic slag)	—	—	27	9

1. Samples collected 2/8/43
2. Average for the 1941, 1942 and 1943 harvest. Percentages calculated on the basis of the number of fruits harvested.

in any way inferior to other sources of potash.

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TABLE 3.—THE EFFECT OF PHOSPHORUS TREATMENT UPON COPPER ASSIMILATION AS INDICATED BY LEAF AND FRUIT ANALYSES AND UPON THE INCIDENCE OF AMMONIATION IN THE FRUIT.

Phosphorus Treatment		Water Sol. P in soil,	Copper, ppm 2, 3				Ammoniation, percent	
Percent	Source	lbs. per Acre	Soil 4	Leaves 4,5	Juice	Seed 4	1944 Crop	1945 Crop 6
none	—	4.2	185	9.6	0.57	10.5	0.4	0.12
6	Super	12.9	260	3.5	0.27	11.5	0.3	0.07
12	Super	34.0	263	1.9	0.15	3.4	24.0	0.05
18	Rock	13.5	—	3.6	—	—	0.1	0.00
6	Colloidal	6.3	—	7.7	—	—	0.1	0.01
6	Basic slag	7.6	—	7.1	—	—	0.1	0.04

1. Based on total P_2O_5 content of source materials used.
2. Copper analyses were made spectrographically by Mr. T. C. Erwin of the Florida Agricultural Experiment Station, Soils Department, Gainesville.
3. Numbers recorded are averages of all samples analyzed from each labeled P_2O_5 group.
4. Oven-dry basis.
5. Average for two sets of samples representing old and new growth.
6. Nutritional sprays, including copper, were used for this crop.

CALIFORNIA-ARIZONA ORANGE ORDER AMENDED

The U. S. Department of Agriculture has announced following approval by growers in a referendum, amendment of the California-Arizona orange marketing order program. The amended order becomes effective November 1, 1949.

Principal amendments provide for (1) the marketing by handlers of early maturity or short-life oranges of a percentage of such fruit equal to the percentage of total fruit to be marketed by all handlers; (2) regulating the handling of oranges marketed within the States of California and Arizona; (3) the addition of provisions permitting the issuance of size regulations; and (4) increasing the committee administering the program to 11 members by the addition of 4 handler members, and setting up grower committee representation by districts insofar as practicable.

In a referendum held during the period March 7 to April 5, 1949, these amendments were favored by 76 percent of the growers voting in the referendum.

Wire baskets are good for collecting eggs in hot weather because they allow rapid circulation of air around the eggs.

TENTATIVE PROGRAM 16TH ANNUAL CITRUS GROWERS INSTITUTE

(Continued from page 8)

Reuther, USDA, Orlando.

"Factors Influencing the Quality of Hamlins on Rough Lemon Stock" —J. W. Sites, Citrus Experiment Station, Lake Alfred.

4:30 P. M.—Adjourn — Swimming, Boating, Recreation.

6:15 P. M.—Supper, Mess Hall.

8:00 P. M.—Auditorium, Entertainment, Motion Pictures, Group Singing, etc. N. H. McQueen, in Charge.

Friday, August 26th

7:45—Breakfast, Mess Hall. Break Camp.

CITRUS INSTITUTE

H. Lightfoot, Lake County Commissioner, Honorary Camp Director.

K. S. McMullen, Extension District Agent, Institute Director.

R. E. Norris, Lake County Agent, Institute Manager.

N. H. McQueen, Charlotte County Agent, Recreation Director.

F. E. Baetzman, Orange County Agent, Ass't. Institute Director.

Mrs. Lucie K. Miller, Lake County Home Demonstration Agent, Hostess.

H. H. Hethcox, Lake County Grower, Registrar.

Reed Hollinger, Lake County Grower, Canteen Manager.

A. H. Whitmore, Secy. Florida Citrus Production Credit Ass'n.,

Floyd Eubanks, Ass't. Lake County Agent, Leader of 4-H Club Detail. Publicity Director.

GOING THROUGH THE MOTIONS

A survey by Industrial Surveys Co. for the U. S. Department of Agriculture reveals that a large proportion of independent grocery stores do not stock even the most common fruits. The survey, made in April this year in a national sample of 4,749 retail food stores, revealed that almost half the stores (43.4%) did not handle fresh grapefruit; almost half (40.8%) did not sell bananas; 30% did not stock apples; 21% did not have oranges; and 30% did not offer lemons. All of these fruits were in fair supply in April.

This survey may help indicate why some stores do a big volume in proportion to their floor space, and others do not, and also why the chains have been gaining. Take grapefruit as an example. Of stores doing $100,000 a year and over, almost all (91%) had grapefruit; but of the stores doing under $50,000 a year only 46.4% had this familiar item.

By class of store, 90% of the chain stores had grapefruit while only 54.3% of the independents carried it. The record on apples is similar. Almost all the chain stores stocked them while only 68.4% of the independents had apples.

Florida Plant Gets Award For Progress . . .

By Food Industries

To Florida Citrus Canners Cooperative for Frozen Concentrated Citrus Juice Process

For outstanding technological achievement in food processing, Florida Citrus Canners Cooperative, Lake Wales, receives the 1949 Food Industries Award. This award — which goes to a company rather than an individual—recognizes the significance of the process for making high-quality frozen concentrated citrus juice.

As a result of this development, the juice is preserved in the near-natural form, with high vitamin C content and excellent flavor. The health-giving product is made widely available to consumers at a reasonable price and in a form permitting economical distribution and convenient use.

In addition to contributing to more pleasant living and better health, the process is helping the citrus inudstry and citrus growers. And what is more important to the food processing industry as a whole, it makes available important new know-how which can be applied to the processing of other liquid food products.

The achievement of 20 years of research and development, the process represents food technology and engineering at its best. By creative thinking and ingenious application of new ideas—plus a great deal of perseverance—the technologists and engineers who made the process possible solved a tough problem of long-standing.

This process received a high score for each of the factors used in evaluating it by the members of the Award Committee. It is of broad significance to the food industry—is highly successful and of economic importance—involves originality in ideas and application of basic principles—is relatively simple and free from probable operating delays and mechanical difficulties —creates a new market for a surplus raw material—and involves high standards with respect to sanitation, purity, appearance and quality of product.

The committee which selected this process as the winner of the FI Award was appointed by the Institute of Food Technologists. It was composed of 26 food technologists connected with universities and colleges. The chairman was Dr. Samuel C. Prescott, Dean Emeritus of Massachusetts Institute of Technology and first president of IFT.

To pick up the story of the development of the revolutionary process for producing frozen concentrated citrus juice, we go back to 1929. At that time, J. L. Heid, now director of research for Florida Citrus Canners Cooperative, was on the staff of the U. S. Fruit & Vegetable Chemistry Laboratory at Los Angeles. There he observed that flash heating in high-velocity tubular heaters permitted the canning of citrus juice with better flavor than could be obtained with kettle heaters.

In the years following, as flash pasteurization gradually came into commercial use, it became evident that extension of the shelf life of canned juices was the next problem for the canning technologist. While means for doing this were being developed, work was also under way to solve the problem of delivering a preserved citrus juice with a flavor which equaled that of juice freshly squeezed from selected fruit.

In tests at the Los Angeles Laboratory, juice was thoroughly deaerated, canned and quick-frozen by immersion in alcohol at —90 deg. F. This was held at 0 deg. for several years without perceptible deterioration in flavor. But container, shipping, and storage costs were high, and facilities for handling the juice at 0 deg. were not generally available.

Equipment for concentrating citrus juice had been improved meanwhile. Time in the evaporator had been shortened, multiple stages introduced, and operating temperatures and pressures lowered. Enough improvement had been made in the product to indicate that it might be possible to concentrate citrus juice without appreciable modification of taste. This could be done, it seemed, if operating temperatures, pressure, and time could be reduced still further.

However, temperature of the available condensing water imposed a limitation on the reduction of operating temperatures—unless uncondensed vapors were pumped or refrigerated condensers were employed.

To make a long story short, juice was concentrated at low pressures without modifying the taste. This was done with equipment and methods planned by L. C. MacDowell, director of research, Florida Citrus Commission, and J. L. Heid, then director of USDA Citrus Products Station, Winter Haven, Fla.

But there was one fault with the concentrated juice. The flavor was flat, because of loss of volatile constituents. Addition of orange oil, as is done with conventional concentrate, improved the flavor. But the investigators improved upon this. They developed a process for concentrating the juice to 60 percent solids, then added sufficient unconcentrated juice to reduce the solids to 42 percent. The result was a concentrate which, when reconstituted after freezing, could not be distinguished by most tasters from freshly squeezed juice.

Engineer Makes Ingenious Suggestion

This was real progress. And Florida Citrus Canners Co-operative decided that the product had commercial possibilities. So they called upon Mojonnier Bros. Co., in 1944, to supply equipment to produce it.

The objective and the problems were discussed with Mojonnier's engineer, J. A. Cross. Among the problems was 80-deg. cooling water. This meant that it would be necessary to compress all vapors through a booster before condensing, or condense the vapors in a refrigerated condenser ahead of the evactors.

Mr. Cross suggested using both sides of a refrigerant compressor system—the heat-pump principle. Water would be evaporated from the juice in one tubular heat exchanger, with heat obtained by condensing compressed ammonia. Then the water vapor would be condensed

in a second tubular heat exchanger by evaporating the liquid ammonia through an expansion valve. This would give an approximately balanced system of high efficiency. In addition, the low temperature of the compressed ammonia (105 deg. F.) would eliminate the hazard of local overheating and permit adoption of the falling-film principle of operation for the evaporator.

The equipment was built and pilot tests conducted in the spring of 1945. These tests were entirely satisfactory, and a commercial plant was designed.

In February, 1948, Florida Citrus Canners Cooperative completed a new and revoluntionary plant at Lake Wales, Fla. Incorporating the equipment and methods developed after the pilot tests, it was designed and built solely for preserving juice of carefully selected citrus fruits, without modification of flavor or food value. The heart of the successful process is quick, high-vacuum low-temperature (50 to 70 deg.) concentration of de-aerated juice, followed by blending with unconcentrated juice, slush-freezing, canning and hard-freezing quickly to 0 deg. F.

Close control of quality is another vital factor in the process. Top-grade fruit is inspected, then passed through a brush and spray washer and a detergent tank. A second inspection follows, then another brush and spray washing—this time in water containing 5 ppm.—of free chlorine to give a practically sterile outer surface. After sorting for size by machines, the fruit goes to the extractors. Here again, quality is protected. A tube is inserted in each fruit to drain the juice as the fruit is squeezed, bitter principles being excluded.

People in the industry conservatively estimate that 6,000,000 gal. of the concentrate will be sold this year. This is the equivalent of about 5,000,000 boxes of fruit, or 8 percent of Florida's total orange crop. So the frozen concentrate will materially help Florida growers, who have produced six bumper crops in a row to glut the market and ruin prices recevied by growers.

THREE-FIFTHS CO-OP CANNED AND FROZEN FRUITS SOLD UNDER OWN BRANDS

Cooperatives market more than three-fifths of their canned and frozen fruits and vegetables under their own brands, according to a survey made under the Research and Marketing Act and summarized in Miscellaneous Report 130 of the Farm Credit Administration, U. S. Department of Agriculture.

The survey revealed that the price at the beginning of the season is usually determined by the cost of the pack plus one other factor such as "sufficient margin" or "a fair return to growers." More than half of all co-op processors make at least part of their sales on contracts prior to processing, the survey showed. About three-fourths of their total sales are through brokers and about 95 percent of co-op canned and frozen fruits and vegetables are sold f.o.b. shipping point.

The report, entitled "Marketing Practices of Cooperatives Processing Canned and Frozen Fruits and Vegetables," by Anne L. Gessner of FCA's Cooperative Research and Service Division, covers the year 1947-48 and discusses the sales policies of 70 co-ops processing canned and frozen fruits and vegetables representing about 80 percent of the co-ops in these activities.

The LYONIZER

Department

COMPILED BY THE LYONS FERTILIZER CO.

Reports Of Our Field Men . . .

POLK COUNTY
J. M. (Jim) Sample

Growing conditions are good in this territory and the June-July growth flush was generally satisfactory. Scattered June and July bloom on some varieties is setting but a heavy late bloom is the exception. Many growers are concerned over their grapefruit making the juice requirement next season. Practically all of the grapeit is off-bloom with oblong shape and tending to a thick peel. From experience a few seasons ago, this type fruit is a problem in early season picking on legal juice standards. Some concern is also evidenced by Hamlin and Parson Brown growers regarding the solids problem. Rust mite have been active and sulphur sprays and dusts have been used in many instances delaying the oil spraying on these blocks. Grove labor is plentiful in this area and owners are using it to good advantage in getting their pruning done. The general crop for next season for this section is good with light cropping spotted.

SOUTHWEST FLORIDA
Eaves Allison

July started off with general rains that seem to be continuing along to an extent that should fill up underground reservoirs. Rains seemed to come for a long time in streaks over small areas — a spot here receiving ample moisture while one nearby still suffered from the drought. However, that condition now seems to be straightening itself out. The new citrus crop in some areas looks good and in others is noticeable by its absence. It will not be until later on in the season that a good picture of the whole can be had. Much July bloom has appeared since the rains began. Cover crops in the vegetable and flower growing areas are responding quickly to the rains. Fields from Ruskin to south of Fort Myers are covered with the waving green of crotalaria, sesbania, hairy indigo and the native weeds and grasses. Grove middles are also showing green again and all seems to be in good order for the Summer.

NORTH CENTRAL FLORIDA
V. E. (Val) Bourland

We are continuing to have ample rain in most sections of this territory with groves looking good and cover crops making an excellent growth. In most instances our fruit is sizing up very nicely and it appears that quality will really be found when we start moving fruit to market this Fall. Scale insects are very busy in some groves. Rust mites have been very active and in some instances we have noticed discolored fruit. The discoloration of fruit has not been a result of lack of effort on the part of the grower, but during the past few weeks weather conditions have been very unfavorable for both dusting and spraying. Melanose is showing up badly on the last flush of growth and now some pruning is being done but too late to prevent melanose infestation.

WEST CENTRAL FLORIDA
E. A. (Mac) McCartney

We are getting plenty of rains throughout this territory, however, we can still stand considerable more. Most of the growers are hoping that some program for the regulation of volume to the market will be worked out by Florida Mutual in plenty of time to take care of the coming crop. With groves in general in very fine condition, we find the new crop to be spotty with a particular shortage noticeable in the case of grapefruit. There are so many blooms of both grapefruit and oranges that it is hard to tell at this time with any accuracy about the volume for the coming season, although the prospects generally are for a fair crop. Most every citrus grower in the territory is hoping that next season will be a good one, and they are predicating their hopes on the belief that Florida Citrus Mutual will succeed in accomplishing successful cooperation in the industry.

HILLSBOROUGH & PINELLAS COUNTIES
C. S. (Charlie) Little

Well, we finally closed our citrus shipping season and we are glad to report that it apparently ended to the satisfaction of everyone. As far as moisture is concerned we are in very good shape, but we still haven't had sufficient rain to bring up the lakes very much. Our late bloom has been disappointing. It looked as if we would have a very heavy one after the rains started the first of June but the bloom was spotty and will not add very much to our total yield. Rust mite have been unusually bad this summer and very hard to control. As usual we are having to fight scale insects and are finding that they become increasingly more difficult to control. Most grove owners used a good application of balanced fertilizer this summer and the groves are showing the results. The growth has been excellent, young fruit has sized up well and very few nutritional deficiencies are in evidence. Fruit is small in size for this time of year but we have a fairly good crop and it looks as if it will develop into real quality. Tangerines are especially small for this time of the year. I would like to urge all growers to keep a very close check on rust mite all through the season.

SOUTH POLK, HIGHLANDS & HARDEE COUNTIES
R. L. (Bob) Padgett

It is now possible to see about what kind of crop we can harvest this Fall and next Sphing, and I am glad to report that from all indications we can boast of a fair crop of oranges with grapefruit a little light in many cases. There are three distinct blooms set in this territory. First, the early bloom set where we had plenty of irrigation. Second, the mid-April bloom, where we had light showers, and, Third, the mid-June bloom. It now appears that we will have a great deal of difficulty in picking the early varieties because of this wide variation in bloom. Scale has been very active this Summer and oil spraying has been very general. The long dry spell worked hand and glove with the scale infestations and the damage is easily found. Rust mite has been very active for the past sixty days, with heavy infestations reported in all sections. Vegetable growers in Hardee county are preparing their land for Fall planting. A large acreage of new land has been readied for plantings in this section and most growers have been busy checking their soils and making corrective treatments. Prospects in general look good in this territory — first for a good crop, and second, for a fair market for all products.

WEST CENTRAL FLORIDA

By E. A. (Mac) McCartney

"And that's what it is, 'God's Country,' " with lakes and hills and hardwood forests, good land and mild winters, a real Fall season and a real Spring. Beginning in south Alachua and Marion counties run a belt of really good soil where anything will grow. This is the north end of the Lake country, and here the hills are covered with big oaks, hickories and magnolias, and the old time piney woods grow tall and thick. Passing on down through Lake and Sumter this good soil crops out again in Hernando and Pasco counties, with their hills and high hammocks and good brown land.

Here it was the old timers picked out to settle and plant the first orange groves. And what a job that was! No such thing as a bulldozer pushing over a few blackjacks and palmettoes and here's your land ready. No sir. This old land was cleared the hard way, with ax and grubbing hoe, sweat, dynamite and fire. But these early groves and farms paid off and made many of their owners wealthy, and today the sons and grandsons of these old pioneers are still reaping the benefits. Some of the best of these old groves and many of the later plantings were brought up on Lyons fertilizer, and the Lyons Company was one of the State's pioneers in the use of the so-called "secondaries," which have proved to be of such primary importance to good fruit and good prices.

Marion county, with it's fine citrus is especially noted as the originator of the pineapple orange, the home of fine staple farm crops, truck and watermelons. Some of the country's very best pure blood beef cattle are raised here, Herefords, Shorthorns, Angus and the ever present Brahman. Marion county's pasture lands take a back seat to none.

As we move on down into Sumter county we find an intensive early spring cucumber section, where trough cukes pick the first bushel and bring the big early money. Cabbage is also a volume crop here, with tomatoes and peppers, hogs, chickens and cattle rounding out the agricultural picture. Here too Lyons is proud of the production records of it's customers.

Down in Pasco and Hernando counties are many fine old groves and an intensive pasture improvement program that is being watched all over the state. Phenomenal results are being achieved in the development of grass lands, particularly in Hernando county. Lyons Fertilizer Company is proud of it's part in this pasture program.

Over in neighboring Citrus county big ranchers have gone in more for volume pasturage of the sand hill variety, but here too pasture improvement is gaining every year. Near Inverness, on the Tsala-Apopka chain of lakes, and in the Withlacootchee valley are some very fine citrus groves, and over on the west side of the towns of Crystal River and Homosassa offer some of the best fishing for both salt and fresh water varieties to be found anywhere. Now humming with progress, only a few years ago Citrus was one of our few remaining frontier counties.

More people every year are finding out about the beautiful hill and lake country of West Central Florida.

AVAILABILITY OF FRUITS AND JUICES STUDIED

The availability and prices of certain fresh and canned fruits, canned juices, and dried fruits in retail stores in April 1949 are reported in tabulations made public by the U. S. Department of Agriculture.

The data show, in general, the percentages of stores of different kinds that have available for their customers each of the products covered, and, conversely how many of the stores do not carry those products. The data are classified under four headings: (1) size of store (measured by annual dollar volume of business); (2) type of store management (chains and independents); (3) size of city in which the store is located; (4) six geographic regions and Chicago and New York City. Average retail prices also are shown for stores of the different categories.

The tabulations cover fresh oranges, grapefruit, and lemons and their canned juices; canned tangerine juice, frozen concentrated orange juice; fresh apples, pears, bananas and berries; canned apple juice, grape juice, pineapple juice, prune juice, and tomato juice; canned apricots, applesauce, red sour pitted cherries, cranberry sauce, fruit cocktail, clingstone and freestone peaches, pears, pineapples, and grapefruit sections; and dried prunes, raisins, apricots, peaches, figs, dates, apples, and pears.

The information is based on a study made by the Industrial Surveys Co., Inc., under contract with the Production and Marketing Administration, Fruit and Vegetable Branch, working under the Research and Marketing Act. The study covered 4,749 retail food stores, representative of all such stores throughout the United States.

Copies of the tabulations may be obtained from the Fruit and Vegetable Branch, PMA, Washington, D. C.

PROPOSED REDUCTION IN RATES ON CITRUS FRUIT FROM FLORIDA

By Growers and Shippers League of Florida

Hearing on the railroad proposal for a reduction in rates on fresh citrus fruit from Florida to various destinations north of the Ohio river was held at Atlanta, Georgia, Monday July 11, and we are informed that the southern carriers have now all approved the application and have passed it on to the other rate juristions for their consideration.

The first group to consider the southern carriers' proposition was the Illinois Freight Association which met in Chicago, last Thursday and rejected the entire proposal. As a result the Illinois Central railroad has taken independent action and will publish the reduced rates. We expect and hope that other carriers serving Chicago, and other cities in Illinois and a few points in Indiana, governed by the Illinois Freight Association jurisdiction will follow suit.

The proposed reduction to Illinois points is a reasonable adjustment and should return a substantial portion of the tonnage to the railroads. Currently the per box charge to Chicago figures $1.16 and the proposed charge is $1.00 or a reduction of 16 cents per box. At the present if refrigeration is used, on a modified basis, the charge for this service is 14 cents per box. The carriers propose to furnish free refrigeration of initial ice and one reicing in transit, so that the reduction is quite substantial, and totals 30 cents per box on shipments moving under refrigeration.

We are writing to other interested carriers urging that they approve the reduction into the above mentioned territory, by taking the same action that the Illinois Central has taken. It certainly will be to their advantage to do ho as the largest growth in truck movement during the past season was to that territory.

With assistance from home demonstration and county agents, 6,004 white families and 1,680 negro farm families in Florida last year improved kitchens, storage space, laundries and other rooms.

Last season for every dozen oranges that moved to market in their own skins, about seven other oranges came to consumers in tin cans or bottles.

Classified Ads